The
British Contribution

Some ideas and inventions
that have helped humanity
by

Donald Cowie

Foreword by
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Secretary of State for
India and Burma

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FOREWORD

Mr. Cowie's humorously apologetic vindication of our British achievement is neither a catalogue nor an explanation, but something of both. He tells us and the world of many things we have been the first to initiate or perfect, but makes no pretence of exhaustively covering the whole field. He intersperses the list with explanation and analysis without wishing to suggest that either are complete. The result is an excellent little historical news-reel, affording both entertainment and instruction, from which we can all learn something even if we each of us, according to our several tastes, would wish to add something not included by the author. As for the gentle stranger, for whom this work was primarily intended, he will both gather much information that is good for him and also often be left—which is no doubt also good for him—in slightly bewildered uncertainty as to when Mr. Cowie is saying what he means, or when he is subtly pulling the innocent foreign leg. But that, no doubt, is the right mood to engender in the minds of the all too logical and clear-cut foreigner when approaching the "English mistery." In any case a useful booklet, suited to the times.

L. S. AMERY

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Chapter I

Explanation

The custom of apologizing for a book is vainglorious. If the book is written and published, there is an end, and any attempt to condone the offence can only deepen it. But the book written and published in time of war is a different proposition. Unless it be a work of great art or entertainment, there must be a proper explanation, or the expense of labour, paper and ink may rightly provoke some pained reproach.

The justification in the present case is that the very conditions of the war have asked for it. A Spanish friend of this nation started the enterprise by pointing out that a campaign had long been in process to demonstrate that the British had chiefly distinguished themselves throughout the world by a propensity to grab. He had lived in Britain for several years and could still remember his initial surprise that the British had actually done something for the world. He could remember his astonishment when he had learnt that colonies had really been given self-government, that a majority of industrial processes had started here, and that the country which so many of his compatriots regarded as a region of fog and smoke was, in fact, the home of the garden-city.

The book is accordingly written for those, whether in Britain or abroad, who want ammunition against traducers of Britain. It is not an attempt to appraise the contribution of this country to civilization. Such an essay would keep a philosopher at work for a lifetime, and then he would probably die of chagrin at the controversy over his laborious findings. The writer in this present case has merely presented a few facts for the enlightenment of those who were previously ignorant of them, and he craves the indulgence of the knowledgeable everywhere. He is writing for the children of humanity, whose mental digestions are governed by their age. He hopes to find his widest circulation outside Britain, but a few at home may like to have a timely opportunity of spring-cleaning their self-awareness.

Chapter II

Basis

I

A man dreamt that the ages had passed and the Western nations were lost in time. He sought for the remains of Britain, to find only a rusty steam-engine and a volume of Shakespeare.

The two extremes are Britain's own, and may contain all that she has ever given to humanity, or that humanity has taken from her. They certainly comprehend a bloody struggle between opposing forces, the issue of which may well be the fundamental British contribution. At this moment the steam-engine may be on top, at that moment Shakespeare; occasionally there is the perfect marriage between the two. Today a power-stunned world thinks most of material achievement, and emphasis must be placed on such in a book addressed to the world. But the basis lies always with the preacher; and so this study shall start.

In attempting to assess his country's essential spirit, every Englishman turns at once to history. He may think of his King Henry VIII, a roaring, fat fellow with a strong appetite for women, wine and power,

rather like the German, Goering. He will then remember that this libertine, because he was refused his own way with one particular woman, tore his Church away from Rome and liberated his people from an ancient tyranny. He will speak proudly of Henry for that very reason. With all his human faults, the Englishman will say, Henry VIII belonged to the Bulldog Breed because he could not abide restraint and only respected a man who could stand up for his rights.

That is one story, one bead at the beginning of the string, or chord of the theme. Then there is the tale of that Henry's daughter Elizabeth, a shrew of a woman, selfish, vain, rather disgusting. But when her Spanish cousin planned to invade England and bring her under his command as he had already brought most of Europe, she suddenly became the symbol of her race, whose heroic utterances are quoted to the present day. It is always proudly related that Elizabeth strode down to Tilbury, where her men and ships prepared for the invader, and cried: "Let tyrants fear! . . . I know I have but the body of a weak and feeble woman, but I have the heart and stomach of a King, and of a King of England, too, and think foul scorn that Parma, or Spain, or any Prince of Europe should dare to invade the borders of my realms; to which, rather than any dishonour should grow by me, I myself would take up arms."

Thus Elizabeth has been an inspiration to her countrymen whenever they have been afraid since. She has personified their most oft-quoted abstract noun,

the word "liberty." Their poet William Shakespeare only paraphrased her when he wrote:

> Come the three corners of the world in arms,
> And we shall shock them. Nought shall make us rue
> If England to itself do rest but true.

Then he paraphrased himself:

> England is safe, if true within itself . . .
> Let us be backed with God, and with the seas,
> Which He hath given for fence impregnable,
> And with their helps only defend ourselves;
> In them, and in ourselves, our safety lies.

The reference to the deity is at once significant. It must be recorded here that when the Spanish invasion was wholly defeated the English at their first chance publicly attributed the victory to something more than sea-power. "He blew and they were scattered," was the immediate reaction, "ascribing to the watchful providence of God and His viewless couriers a result that might without undue arrogance have been in part attributed to their own skill and courage at sea." Fortunately an English historian wrote those words, fortunately and typically.

The British have not produced many saints. Most of the British reforms, indeed, have been brought about by worldly sinners of the Elizabethan variety. But that religious *motif* continually variegates the theme. The Elizabethans were followed by the Puritans. Their poet, John Milton, gave an almost sacramentary consecration to the tearing down of idols. The fervour in-

spired was so intense that it became a new tyranny in f, and there was the characteristic reversion to Elizabethanism, with the complete licence of the Restoration period. After that the idealists again sought discipline, and were enabled thereby to devise the system of checks and counterbalances known as the British Constitution. Poets proceeded sedately to enshrine immutable ideals in permanent couplets. Then this stiffer eighteenth century overflowed into the nineteenth with a mighty, bottled-up gush, among which the worst first came to the head. But the greatest piety of all was distilled beneath. Now the poet William Wordsworth wrote down his patriotism thus:

It is not to be thought of that the flood
Of British freedom, which, to the open sea
Of the world's praise, from dark antiquity
Hath flowed, "with pomp of waters, unwithstood,"—
Roused though it be full often to a mood
Which spurns the check of salutary bands,—
That this most famous stream in bogs and sands
Should perish; and to evil and to good
Be lost forever. In our halls is hung
Armoury of the invincible Knights of old:
We must be free or die, who speak the tongue
That Shakespeare spake; the faith and morals hold
Which Milton held.—In everything we are sprung
Of Earth's first blood, have titles manifold.

That flood surged on to Rudyard Kipling, where it temporarily found its bog and sand, but not before he had written two famous verses:

God of our fathers, known of old,
Lord of our far-flung battle-line,
Beneath whose awful Hand we hold
Dominion over palm and pine—
Lord God of Hosts, be with us yet,
Lest we forget—lest we forget!

The tumult and the shouting dies;
The captains and the kings depart:
Still stands Thine ancient sacrifice,
An humble and a contrite heart.
Lord God of Hosts, be with us yet,
Lest we forget—lest we forget![1]

This has often been construed as the pinnacle of racial arrogance. Perhaps it is that, but it is also the apotheosis of England, the complete rendering of that extraordinary underlying piety which has made of this people an original folk, compact of steam-engines and a spiritual inferiority complex, the pride and tearful despair of the world. Here is the outstanding point for immediate investigation.

The subject is very difficult. A landscape in mist is the hardest scene. But it is certain without a doubt that the peculiar people of the British Isles, by virtue of inward conflict and equal respect for strong and weak, have profoundly influenced the course of modern history. It is difficult for others today to believe that the British are really fighting a war for Czechoslovakia, Poland, Denmark, Norway, Holland, Belgium, France and Greece when they are so obviously fighting Germany to protect themselves. But it is a fact that the

[1] Reprinted, by permission, from the poem *Recessional* published in the *Five Nations* by Methuen.

people of Britain today, while not necessarily over-keen to fight for anybody, are nevertheless certain that they would not be fighting at all if they were not fighting for Czechoslovakia, Poland, Denmark, Norway, Holland, Belgium, France and Greece. Without a rape of Poland no British Government could have roused the nation to war in September 1939.

Here is another point. The doctrine of the Balance of Power has always been understood by a few British statesmen and diplomatists. No Power or combination of Powers in Europe should be allowed to attain such strength that they could overwhelm any other combination. It has often, accordingly, been the British practice to take the European weaker against the stronger side. Philip of Spain was opposed by Elizabeth when he became too strong; Frederic of Prussia had British aid when faced with a powerful coalition; Napoleon was Britain's enemy because he threatened to command all Europe; and in our time two successive German tyrants have been opposed for no other reason.

But it should be noted that in the case of all these wars the mass of the British people knew at the time little of, and cared less for the doctrine of the Balance of Power. On each occasion they were fighting, on behalf of their weaker brethren and their own precious liberties, a dreadful monster.

The patron saint of England is St. George. In reality George was a rather unpleasant ecclesiastic of Cappadocia, but the British once gathered that he had been responsible for the heroic slaughter of a dragon, and ever since they have emblazoned him on their proudest

decorative surfaces. They have liked to take as their national symbol a champion against evil. Every young Briton leaves school with the knowledge at the back of his mind—whence it may or may not afterwards issue in action—that he must be free; he must not forget himself or his moral principles; he must fight what the Government regards as evil.

2

Here, then, is the distinctively British moral mark. The Briton is a self-deluding hypocrite.

Well, and what if he is? At least he tries to put a good face on things. He may not always act according to the tenets of his revered Christianity, but he always knows that he *should* respect those tenets, and he sometimes endeavours to do so. He is potentially good, even when bad. There is a tremendous reverence in all the people for Christian ethics, from the cabinet minister to the open criminal, which to a certain extent governs their actions, however the result may fall short of godliness.

And is it better to be a man who tries to be good, even when failing, or a man who deliberately renounces all but evil? The hypocrite may be funny, but he does at least make some showing of righteousness, and is to that extent a better man than the individual who scorns moral principles completely and works only for the main chance. The British have not so far given complete popular fame to a philosopher like Voltaire, who

consistently finds the worst in everything and good nowhere. They are incorrigible optimists as a race, and it is not only a convention but a deeply ingrained custom with them to measure every act against an absolute and ideal standard. Therefore the Briton has often surprised other peoples in their contacts with him. He has been called mad, perfidious and heroic. To the logical mind his actions are often senseless or deeply cunning; to the passionate soul his performances are frequently a lamentable declension from his protestations. He is unaccountable just because he does not always act from self-interest alone.

There is King Henry VIII, a roaring rogue, and he was acclaimed Defender of the Faith; and there is Oliver Cromwell, who pursued his opponents remorselessly but established many of today's civil liberties. There is Mr. Chamberlain, a politician whose faults are for history to condemn, and he will always be respected by multitudes of his countrymen as a worker for something better than war. The famous Admiral Nelson could fight like a tiger, and with as little gentility, but he fell on his knees before the Battle of Trafalgar to utter the prayer: "May humanity after victory be the predominant feature in the British Fleet." The most renowned writers of this country today are both Utopians—Wells and Shaw.

Both Wells and Shaw would admit that they have not always been able to practise what they have preached. Neither has the British people as a whole. In that case, if it is hypocritical to say one thing and often do another, then the British are a nation of hypocrites.

But the world may well pause at this juncture to reflect upon the rather different course its history might have taken if the British had not preached and occasionally, if only occasionally practised.

Several tyrants would have successively destroyed the last vestiges of Western civilization long ago. All the Western world would have descended into an even darker age than Europe knew after the Goths and Vandals of Germany had laid waste to Roman culture. The very notion that a rule of law could operate between nation and nation no less than between man and man would never have been put to the test.

The typical Englishman craves the respect of others on behalf of his country, not for its material success, nor its strength at arms, but for its love of freedom and fair-dealing. He has been educated in the Christian tradition, and therefore believes it is not only right but best to be good, however he may decline from his precept in practice. But he does at least *know* and believe. There are no real cynics among the Anglo-Saxons. The Englishman knows that his breed is not impeccable, but, defiantly, he would rather have one British hypocrite than a Europe-wide concourse of "realistic" Huns. Having *some* good in him, a fragmentary respect for virtue, the one might always improve, whereas all the others could only descend from bad to worse and the end of all.

The plan of this book is to expand these obscure references. The different chapters deal with special aspects of the British contribution, more especially in matters of the hand and brain. Emphasis will be placed

on the contributions of different people, for the British are predominantly a nation of individuals. But at the end there may be some answer to the many questions raised in this discussion of the British "basis," if not in so many words, at least in the reader's thoughtful mind.

Chapter III

Government

I

"I think your policemen are wonderful," is a phrase uttered by American film-stars on arrival in England, and it has become funny with long usage. But it is also an acknowledgment of some peculiarity in the British method of preserving law and order. An account will be given later of how the Royal Navy was founded to protect British commerce. Greater institutions than the Navy have been the product of a similar motive. It might be a fine thing to evolve idealistic poets and materialistic steam-engines, but either would be useless if a tyrant took charge of their operation. They were indeed a headstrong people, these British who sailed across perilous seas in their dark days to the muggy isles.

The ideal of freedom is not a British ideal, nor is democracy an Anglo-Saxon invention. But this people, that they might lead their individual lives without hindrance, sail their ships regularly, and receive reward for their many inventions, devised some unique methods of procuring freedom, or of government.

Two kings in British history were brothers, and one was as popular as the other was reviled. The first, Richard, must now be regarded as a bad steward, but excited admiration then and after for his high crusading zeal. Saladin the Muslim had proclaimed holy war against Western Europe, had invaded the kingdom of Jerusalem, and taken the Holy City itself. His massive hordes also threatened all Western commerce, as did those of Napoleon and Hitler at a later time. But the British were not openly conscious of that. They followed their valiant Richard because he fought for Christian liberty—to trade, yes, but liberty all the same.

Richard's brother John was equally unpopular because he stayed at home and tried to restrict the liberties of his subjects. Therefore he was overcome, and forced to sign Magna Carta, a document ratified afterwards over thirty times by subsequent monarchs. It established that no free man should be imprisoned or charged save by the judgment of his peers in accordance with the laws of the land; that there should be one system of weights and measures throughout the kingdom; that foreign merchants should have freedom of commerce; that ancient liberties, in general, should be preserved; and that no taxation should be imposed save by the consent of the council.

Simon de Montfort was a powerful hero, with a broad mind and fierce hatred of kingly tyranny. It was his bold action that forced Henry III, his brother-in-law, to grant the first representative Parliament. This was not unique. The Swedish Parliament, founded about the same time, was as representative. But the British

became so fond of the institution, as a method of limiting the power of rulers, and assuring the right to live and work in freedom, that they were never content until it became a model for the world.

A Yorkshireman, John Wycliffe, started the Reformation itself, as modern Scholasticism came out of England with Roger Bacon, Duns Scotus and William of Occam. This is stated on no less authority than that of the German commentator William Dibelius, who was also a severe critic of British institutions. "England," he admitted, "gave birth to the modern idea of toleration." Yet another stranger in England noted how the ordinary workman was very peaceable, unless his liberty was threatened: "But if you offer to lay hand on his day's wages, on his cow, or his right in common, or his shop, he will fight to the Judgment." Thus Henry VIII was another popular king, not because he had so many wives, but because he defied the power of the Church. Oliver Cromwell similarly gained the support of England for his strokes at tyranny. All liberators have been popular with the British, from Barbarossa to Bolivar and Masaryk.

Indeed, the British people have always entertained a most obstinate and extraordinary belief in the essential goodness of human nature. After thrashing his enemy, the Englishman suddenly relents, and assists him to his feet. It is enlightening to visit the House of Commons in session. Political opponents will fight verbally for hours, and take tea together on the Terrace afterwards. This has been called weakness. Who can say? Certainly it has caused a lot of trouble in British history.

Often the people, by their tolerant attitude, have allowed their kings and ministers to acquire that very concentration of power which is fatal to the working of the democratic system. But on each occasion they have devised their bloodless remedies. After a long struggle with the Stuart kings, they brought the first "constitutional" monarch from Holland, William of Orange. He was told that he could have the Crown on condition that he always bowed to the will of Parliament. It was not for nothing that most of the plays of Shakespeare had dealt with the humbling of unjust kings, or that Macbeth, Brutus and Hamlet, among the greatest of Shakespearian characters, had all been regicides.

But the destruction of individual tyrants was not enough. Parliament itself fell into the hands of a small junta. Popular agitation continued for years until the Reform Bill of 1832 was passed. It did seem now that the people had found a means of automatic insurance against the rise of an oppressor. The Reform Bill made it necessary for a member of Parliament to be elected by a majority vote of responsible citizens. Gradually the technique of this democracy was improved still more, until at last all adults had the right to vote. A British Dominion, New Zealand, first gave the vote to women.

The deliberate aim of reformers now was to extend the advantages of education and a high standard of living to all citizens so that all would know *how* to vote.

No Englishman would claim that his political system is perfect. It is still the convention to laugh at Scots-

men, mothers-in-law and politicians. But it is significant that most countries where the people like to decide the manner of their lives and government for themselves—the countries, strangely enough, that enjoy the greatest material success, comfort and contentment of mind—have adopted the system which began, and was perfected in Britain.

Jeremy Bentham should be remembered as a great benefactor of humanity. It was largely as a result of his writings that voting by secret ballot was introduced, the first savings bank was formed, cheap postage, women's suffrage, statistical research, and the humane treatment of criminals were introduced. Similar men taught labour to organize in trade unions, and so to become a strong political influence. The idea of co-operation was hatched by Robert Owen. Some working people in Rochdale adopted the idea and formed a "co-operative society," originally a grocer's shop owned by its customers, who shared the profits. Today the "Co-op" is the largest trading organization of its kind in the country, with its own steamships, warehouses, banks, plantations. And the word "Co-operation," like so many English terms, has international currency, because half the nations in the world have also adopted Robert Owen's original idea.

The idea was to achieve freedom—in this case, from the tyranny of profit-making merchants. Yet the wealthy mercantile class was itself productive of equally original reforms, at least one of which can be safely regarded as an international contribution. The wealth of that mercantile class had been enormously increased

in the eighteenth century by traffic in slaves. The profit-makers suddenly decided to abolish slavery.

2

This story is a good illustration of the British character, that curious compound of the ruthless and compassionate, in which the compassionate, by some inexplicable chance, invariably contrives to have the last word.

William Wilberforce was born in 1759, the only son of a wealthy Hull merchant, who could well afford to give him an expensive education. Yet the boy did not wholly escape the influence of his environment, where narrow religious sects preached fire and brimstone to hard-faced money-makers; and while at school he wrote to a Yorkshire paper condemning "the odious traffic in human flesh." But for the most part young Wilberforce learned good companionship, and the art of enjoying what it was his good fortune to possess. He learned to be a "gentleman." He went to Cambridge, took his degree, enjoyed himself; and after he had inherited his father's fortune, entered the gay life of the London clubs. He became popular, and made friends with such celebrities of his time as Pitt, Sheridan and Burke; so that he was naturally tempted to enter Parliament; and did so in 1780, when he had just turned his majority. Four years later he challenged the strong Whig interests in York, and was sensationally returned member for the county.

Despite that brilliance, Wilberforce was still very young, and did not reach maturity until after a tour of the Continent with Isaac Milner, Dean of Carlisle. Now a great spiritual change was seen in the lad. He suddenly deserted his frivolous companions, and studied theology. He had been a member of all the clubs, and his villa at Wimbledon had been a favourite rendezvous of gamesters. Now Wilberforce founded a society for the suppression of vice!

About this time Clarkson, Granville Sharp and others were exposing the evils of the slave trade, and beginning a long agitation for its abolition. But public opinion, so far, was insensitive to the evil. Wilberforce, in the glory of his spiritual metamorphosis, was approached by the early reformers, seized with enthusiasm himself, and began the fervent crusade which lasted for the rest of his life. His friend Pitt promised him the Government favour, and in 1789 Wilberforce first proposed the abolition of the slave trade.

Strong opposition from those interested in the trade caused the rejection by the House of Commons of that preliminary measure. But the first step in the education of public opinion had been taken. Wilberforce and his friends followed their initial effort with meetings in all parts of the country, specially written books and pamphlets, and another Parliamentary debate in 1791. An ethical revolution was being provoked by these enthusiasts, and no better revolutionary could have been chosen than Wilberforce, with his brilliance in dialectic and oratory, his magnetic personality and his money.

The tide of public and Parliamentary opinion slowly began to turn. The French Revolution and the war with France handicapped the reformers, but they had succeeded in stirring the sluggish British conscience. After the peace of Amiens in 1804 Wilberforce introduced his Bill again. Great jubiliation followed its acceptance by the Commons; but slave trade interests in the Lords were still strong enough to reject it. Wilberforce introduced the Bill again next year, and now it was rejected by the Commons. But in 1806 popular meetings all over England showed that public opinion was ready, and the Bill was taken to the Lords again and passed. Triumphantly it was borne down to the Commons, and in 1807 became law on a Commons majority of 283 votes to 16.

At the hour of triumph the reformer was loudly cheered in the House, and one member drew an eloquent parallel between the destroyer, Napoleon, and the liberator, Wilberforce, "who would that day lay his head upon his pillow and remember that the slave trade was no more."

There was a lull in Wilberforce's activities for a time but soon he was worrying his fellow members of Parliament again, urging Catholic emancipation, and criticizing the policy of India. He married a wealthy banker's daughter, reared a large and dutiful family, one son of which later became a bishop of the Church of England; and he began to urge the emancipation of all slaves in British colonies. His initial reform had made it illegal to trade in slaves, but not to keep slaves on overseas plantations.

Wilberforce sacrificed much in his endeavours. He chose to remain independent in Parliament, where his talents and wealth might have brought him high office if he had allied himself to Party. He used his talents and wealth not for his own ambition and comfort, but that future generations of remote negroes should have theirs. He was the ardent worker until his last hour; three days before death he was told that the total abolition Bill had passed its second reading. Another month and he would have seen his cause finally triumphant in the Abolition Act of 1833.

But the measure of that achievement was its cost to British merchants of a vast sum of money by the ending of a very lucrative system. Wilberforce, it must be repeated, was a merchant's son.

3

Another middle-class product of the Industrial Revolution, Robert Raikes, founded the Sunday School movement, which led in its turn to the intensification of British missionary enterprise in the remote parts of the earth. That enterprise was not wholly admirable, but if it had produced David Livingstone alone, it would not have failed. The underlying idea, if not always realized, if sometimes a cloak for selfish designs, was the extension of what the progenitors sincerely believed was a better life. They have not yet been gainsaid by any other ideology in action. Theirs is still the best method, despite all cynical and interested detraction, and it has

left many peoples in greater happiness and self-satisfaction than they were found.

These are movements whose importance has often been overlooked by the philosopher and historian. They are an outstanding part of the British contribution, and have been widely copied. It is unwise to pass by such a "great original" as the Salvation Army, founded in the East End of London by William Booth in 1865, since spread to every part of the globe. The soldiers of that army might have relied for weapons on flaming texts to an accompaniment of the big drum, but after those they carried nothing more lethal than a passionate desire for human freedom. The Y.M.C.A. and Y.W.C.A., both British originals, had no other purpose but to assist man to conquer himself. The Boy Scouts were Hitler Youth with a Christian purpose.

This was, indeed, the progenitor of all those youth movements that have been so devilishly perverted for ulterior ends by tyrants in our time. It is the most modern example of crusading endeavour. The Founder, Lord Baden-Powell, has often defined the objective, "not to fit themselves for war, but to develop the spirit of universal peace," "to bring about God's kingdom upon earth—the reign of peace and goodwill," "to act as ambassadors of goodwill, and to break down barriers of race, of creed, or of class."

These are words, and the world has heard similar ones from rogues in its own time. But the Boy Scout movement has also performed deeds, and is already old enough to have a record, which is completely unblemished. It might be funny to wear a uniform—the

Germans and Italians have finally convinced us of that —and it might be unduly aspiring to aim at goodwill and peace, but perhaps it is better than doing nothing at all and acquiescing dumbly in the worst.

The example of the Boy Scouts is quoted in this place because of its aptness to the theme. Today there are about three million of these British-inspired boys in the world, from Chile to Zanzibar. Perhaps the movement was originally the product of a realization that boys must be trained to be free, or they would inevitably be slaves to themselves and others. An Industrial Revolution was useless if the people were not free to enjoy its products. The passing of the first Factory Act is another significant milestone on this pathway to emancipation.

The new machine industries had created a great demand for workers. Employment was offered to all who would take it, so that before the end of the eighteenth century the use of child-labour in factories had become universal. In 1784 a bad outbreak of fever in a Manchester cotton-mill moved a committee of doctors to state that shorter hours for children under fourteen were "essential to the present health and future capacity of labour." Sir Robert Peel, the owner of this mill, himself brought forward in 1802 the Health and Morals of Apprentices Act; but this measure was not properly enforced, and did little more than relieve the conscience of its author. Ten years later Robert Owen took up the cause of factory children, and the fruit of three years' agitation was the Act of 1819, that prohibited the employment of children under nine

years of age, and limited the hours of employment of children under sixteen to twelve a day. But this Act was not properly enforced. The children worked on.

Then came Reform, to produce a better Parliament, and an immediate inquiry into factory conditions was demanded. The inquirers found that "in some rare instances children begin to work in the factories at five; it is not uncommon to find them there at six; many are under seven; still more are under eight; but the greater number are nine." They also discovered that many children habitually worked sixteen hours a day. An Act of Parliament was passed immediately to end these appalling conditions.

It established a nine-hour day for children under thirteen, and a twelve-hour day for those between thirteen and eighteen; it prohibited the employment of children under nine years; it provided for the appointment of factory inspectors to ensure the enforcement of its regulations; and it stipulated that all factory children under thirteen should be sent to school.

Today these reforms do not appear very sweeping. But they were startling innovations at the time. They were gradually extended, until eventually child-labour was prohibited altogether, and it was made compulsory for all children under fourteen years to go to school at the State's expense. These later improvements were not peculiar to Britain; but the first endeavour to lighten the lot of industrial workers was made in this country, and the example was eventually followed by other nations.

Sir John Lubbock, later Lord Avebury, obtained

the limitation on the hours of work of women in factories, and the institution of the Bank Holiday. Here was another "liberating" idea from Britain that soon spread to other industrialized nations. There have been many more, too many for detailed mention. A British Dominion decided to pay old-age pensions to workers from State funds. Britain adopted this measure in due course, with a system of pensions for other classes of helpless people, and a method of compulsory, State-aided insurance against sickness and unemployment. Several great nations have still to go so far.

5

The American film star's remark about the London policemen has yet to be explained. How does it connect with the British contributions in industry and social welfare that have been briefly surveyed? Sir Robert Peel has already been mentioned as a mill-owner who introduced some reforms. He entered Parliament at the age of twenty-one, and exhibited such capacity that he was appointed Under-Secretary of State for the Colonies in the following year. From 1812 to 1818 he was Secretary for Ireland; and in 1822 he became Home Secretary, that is, Minister in charge of law and order within the realm. He found that law and order scarcely existed.

Crime was so common that it was difficult to know what to do with the criminals. They were confined in old ships in the River Thames and elsewhere. They

were sent to distant colonies. They were executed by the thousand. Their offences were often trivial, but even the death-penalty did not deter these petty highwaymen, stealers of pocket-handkerchiefs, poachers of preserved game, forgers, burglars and deserters from the Army and Navy. The population was increasing rapidly, and the problem was serious. Sir Robert made a careful examination of the methods of detecting the criminals. He found that the police forces consisted mainly of undisciplined individuals who used the methods of the criminals themselves; that was, they employed spies, sneaks and threats. Sir Robert took all their weapons from the hands of these men (who had evidently been appointed on the principle of "set a rogue to catch a rogue"), and he dismissed those who were unable to follow his directions.

These were to exercise tolerance, seek out and apprehend criminals by the use of intelligence and scientific methods—and not to use force until all other means proved useless (and then not to use vindictive or spiteful force).

Half England said that Sir Robert Peel was mad. It was predicted that such a wave of crime would arise, as would envelop and extinguish all the free institutions of the country. On the contrary, crime in England diminished from that day. The death-penalty was removed for all save murder and high treason. The new police, smart in their civilian uniforms of blue, actually became popular with the people, and were called "Roberts" or "Bobbies" after their founder. Today the English policeman is the tamest law-keeper in the

world. He is so tame that newspapers delight to picture him as he escorts little children and ducks across the road, holding up all the traffic for this purpose.

Sometimes he has to admonish his criminal captures, even strike them down, but he rarely has to treat them as animals, or enemies in war. His method must be the best, or Britain could not boast today a freedom from the worst forms of crime that is unique in the world. Many countries have paid him the compliment of modelling their police systems on his, even to the uniform.

But it is the idea behind the British police that is important. Here, indeed, is an important contribution of the British peoples to civilization. Its extension into the wider politics of the overseas Empire and Commonwealth will be discussed in a later chapter. This nation was led by mercantile instincts to develop new industrial methods and to extend novel communications across the world for the distribution of its products. But it was discovered early that mercantile enterprise, and all peaceful forms of human endeavour, were useless without freedom. To obtain this it was necessary to devise methods of government that would permit the enforcement of laws without depriving the people of the very liberty that was their object.

The real secret of Sir Robert Peel's success was that he asked the people, in effect, to be their own policemen. The wider British method of democracy is *self-government.*

Chapter IV

Steam-Engine

I

The British made little mark upon the outside world until they learnt how to carry their goods in ships across the oceans. Then the diminutive vessels of this island race made perilous voyages and established strange contacts. They visited the furthermost lands and discovered savage things. Today's map of the world is the memorial roll of their captains, Baffin, Frobisher, Drake, Hudson, Hawkins, Davis, Dampier, Cook, Vancouver and so many more. These men returned to England with tales and gold.

Until now the British had hardly been a nation. Here were several peoples as yet unfused, an uneasy confederacy of stout individualists, now dominated by this, now by that king or baron. The staple industries were mainly concerned to feed local bellies and clothe adjacent backs. Then those captains brought back their tales and their gold. There were peoples in other parts of the world who had no cloth at all, no knowledge of firearms, no Christian religion. There was high adventure to be had among them, and a mighty

profit. Why not send out more and properly organized merchant ships? Thus came the great companies of traders which first opened the world's major export markets.

There were the Muscovy Company, which brought the Western amenities to Russia and the lands of the Baltic; the Levant Company, which braved the Mediterranean pirates, made terms with the Turks, even established itself in Constantinople; the East India Company, which penetrated the Orient; the Hudson's Bay Company, which developed the frozen north of America; and many minor others. This was not the only Western nation to produce navigators of such skill and merchants of so considerable an enterprise. But the characteristic of these errant British was that they always came primarily to trade, and stayed to stabilize.

Neither North America, Australia, New Zealand, South Africa nor several of the rest were discovered in the first place by the British. But these sober people invariably remained where others failed to stay, and they remained not to oppress and dominate, but to develop and improve. They came with a sword for self-protection, but a ledger and pruning-hook for subsequent cultivation. Whatever charges of monopoly may be levelled against them, it cannot be said that they left destruction in their train: they had no train, but a continuous enterprise; and the native inhabitants of the countries they battened upon were chiefly profited by the contact.

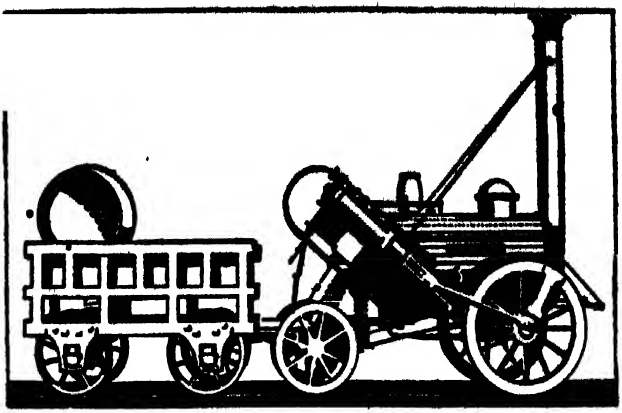
These first British merchant-adventurers strove for their own monetary advantage, but they sprayed many

needy parts of the world with reliable consumption-goods. In their language the term "goods," to signify articles of trade, came from the same root as the word "good," that signified the opposite of "bad." "Our chief desire," wrote Richard Hakluyt in the sixteenth century, "is to find out ample vent of our woollen cloth, the natural commodity of this our realm." It is perfectly true, though strange to relate, that not lust of conquest but desire to trade created the British Empire.

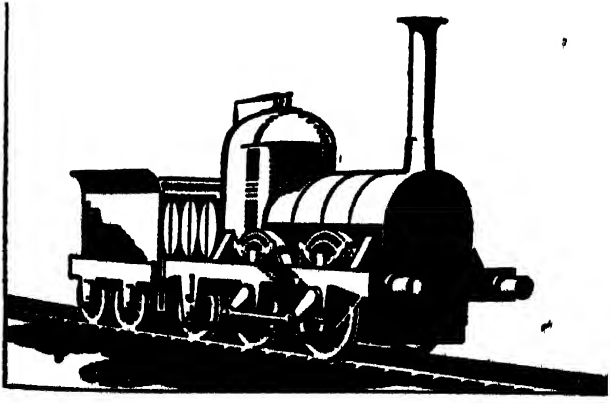
The method of sea-fighting by "broadside" was invented by the British, but so was the woollen blanket, by a merchant named Thomas Blanket, of Bristol.

Their descendants are not always proud of those adventurers now. They can only see them sometimes as frequent pirates and slave-dealers. It is not a complete consolation that all other peoples were similarly misguided in those days, and that the British Navy has been directly responsible for the suppression of piracy and slave-dealing since.

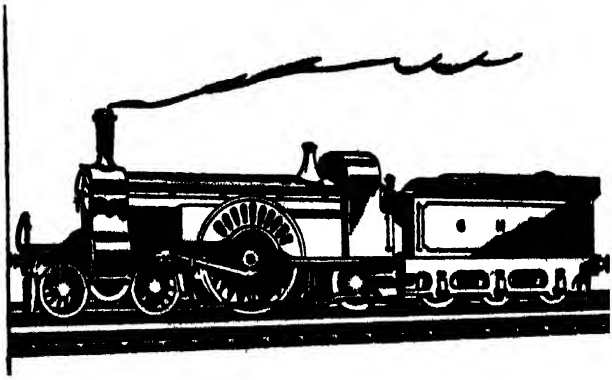
Indeed, the Navy was not formed with the object of conquering other nations. Its primary purpose was to protect Britain; then it was intended to act as a police force on the seven seas, so that traders might voyage without fear. Thus the Emperor Napoleon, strangled by the British blockade, screamed from his heart that the British were no better than a nation of shopkeepers. He was right. This country had always been more interested in providing men with goods, than in assembling men in masses and leading them to their doom. The only real revolution brought about by the British was an Industrial Revolution.



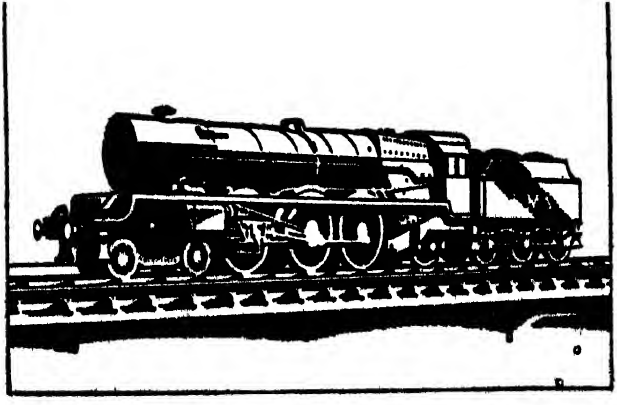
The Rocket, 1829



The Next Stage of Locomotive Design: The Lion



Late Nineteenth Century (Great Northern type)



The Princess Royal (London Midland and Scottish Pacific type, 1934)

Steam-engine

2

The steam-engine was first proposed by Edward Somerset, second Marquis of Worcester, when he wrote a book in 1663 entitled, *An Admirable and Most Forcible Way to Drive Up Steam.* But a hundred years passed before the suggestion was translated into reality. In 1769 a Scotsman named James Watt devised a machine which utilized the steam from boiling water to operate a piston and a wheel. The modern age of speed and steel was born in that year. Other British inventors had preceded Watt, but he was the first to perfect his machine as a commercial proposition. It was used only for mining operations until 1785, when it was applied to a cotton factory. The wheel of that Industrial Revolution had begun to turn.

Perhaps it was fortunate that the steam-engine began in this country, where it was immediately applied, not to the greater power and glory of the nation, but to its purse-strings, and indirectly to the general good of man. A different people might have tried to make a military weapon out of it at once—indeed, a certain Continental inventor constructed a steam-wagon for military purposes only a short time after Watt's initial discoveries—but these others thought instead of the export trade.

Manufacturers at this period were experiencing a great demand for their cloth. But textiles were hand-made, and could not be produced quickly. Therefore several inventors at once applied themselves to the problem of providing machinery for the purpose.

Richard Arkwright, the most famous, had a career that was typical of them all. He was born in poverty, the youngest of thirteen children, had no education, and was apprenticed to a travelling barber. It has been said of him: "He manifested a strong bent for experiments in mechanics, which he is stated to have followed with so much devotedness as to have neglected his business and injured his circumstances. His natural disposition was ardent, enterprising and stubbornly persevering; his mind was as coarse as it was bold and active, and his manners were rough and unpleasing."

Arkwright set himself the task of inventing an improved cotton-spinning machine. By adopting an arrangement of rollers that moved with different velocities, he succeeded in perfecting his "spinning-frame." He took out his first patent in 1769, that remarkable year of Watt, and, entering into partnership with another man, became a manufacturer on a large scale. In 1771 he established the first cotton-mill worked by water-power He became High Sheriff of his county, and was knighted by the king. We read of him again: "The most marked traits in the character of Arkwright were his wonderful ardour, energy and perseverance. He commonly laboured in his multifarious concerns from five o'clock in the morning till nine at night; and when considerably more than fifty years of age, feeling that the defects of his education placed him under great difficulty and inconvenience in managing his correspondence, and in the general management of his business, he encroached upon his sleep, in order to gain an hour each day to learn

English grammar, and another hour to improve his hand-writing. Arkwright was a severe economist of time; and that he might not waste a moment, he generally travelled with four horses, and at a very rapid speed."

Arkwright invented the spinning-frame, Hargreaves the jenny, Crompton the mule and Cartwright the power-loom. These were machines for making cloth that had formerly been spun and woven laboriously and slowly by hand. Attached by belts to the new steam-engines, they at once increased the output of the cotton industry by two hundred per cent. The same principles were applied to the woollen and linen industries with similar results. It was discovered that chlorine could be used for bleaching, to take a few days over the process instead of half a year. Calicoes were printed by steam-driven cylinders instead of by hand. Mackintosh invented the first process of waterproofing. The sky darkened in the Midlands as industrial chimneys poured out their sooty smoke; it reddened as the furnaces forged their necessary iron.

But to produce this fuel for the machines and metal for their construction, men had had to discover many other original devices. Iron had previously been smelted by charcoal, and was a clumsy product. Coal-mines had merely scratched the surface of the earth, and scratched it dangerously for the unhappy miners. It was essential now that such materials should be produced efficiently and quickly.

Thus the craft of mining engineering was largely developed in Britain. The methods of sinking a shaft, of

pumping out water, of providing ventilation, of transferring the coal to the surface were devised now. Sir Humphry Davy invented the safety-lamp. A number of experiments were made at the Carron Iron Works in Scotland and at Coalbrookdale, in the smelting of iron by coal instead of burnt wood. The first cast steel was made at Sheffield. Joseph Bramah was a native of Yorkshire. He applied himself to invention, and constructed the first machine-tool, the most important device in modern industry, which produces machines from machines. He also invented the first patent lock, a machine for printing bank-notes, a hydrostatic press and a liquid-pumping apparatus. James Nasmyth, of Edinburgh, produced the steam-hammer, so that iron and steel could be moulded at will into any shape. Whitworth, about the same time, devised a machine for taking measurements to one-millionth part of an inch, to ensure perfect engineering accuracy.

The goods could now be produced. But existing methods of transport were far too slow for distributing them. Men still travelled laboriously on roads of mud, and in cumbersome vehicles drawn by horses in relays. They were at the mercy of wind and tide when they took to the river or sea.

3

In 1767 the first rails of cast-iron were laid down in Britain; subsequently it was discovered how to make wheels that would not run off the rails, and to con-

struct rails of steel in the safe shape that is now universal. But rails and wagons on them were not much use unless steam-power could be harnessed to the wagons instead of slow horses. A Cornishman named Trevithick in 1804 invented the first steam-propelled carriage that could travel quicker than any horse-drawn vehicle.

The man who devised the first practicable steam locomotive and railway system, George Stephenson, was born near Newcastle, and first employed in a coal-mine. He had no education, but taught himself to read at the age of seventeen. In 1804 he was working as brakesman at a colliery, and had control of a stationary steam-engine. He thought of adapting this machine to the purposes of transport, and at last constructed an engine that would draw coal-trucks at the rate of four miles an hour. In 1825 Stephenson completed the first railway line, between Stockton and Darlington. His locomotive could draw a train of thirty-eight carriages, laden with goods and passengers, at a rate of twelve miles an hour.

The invention greatly alarmed some people at first. An old man recalled that he had been waiting with other passengers for the arrival of Stephenson's "Rocket" at the station: "When the train drew up at the platform, the engine-driver suddenly let off steam and blew the engine whistle. The effect upon those nearest to the engine was like throwing off a bombshell, for they rushed back, helter-skelter, away from the engine, and two or three were knocked down."

When the London and North-Western Railway first

came to Crewe it found a lonely farmhouse on the summit of a hill with pasture and cornfields all around. Today Crewe is one of the greatest railway centres in the world. Thousands of lines intermingle here; workshops cover hundreds of acres. And what started in England has spread to every part of the world, largely with the help of British engineers and materials. The railway has carried prosperity with it everywhere, because it has been the first practicable means of carrying heavy goods across long distances, cheaply and at high speed. There is iron-ore in the distant mountains of Sweden, but it is useless until a railway is constructed across the mountains to the coast. The settlement of remote parts of South America would have been impossible without the railway. Hordes of immigrants swept across the United States and Canada in the wake of the steel road.

A strategic communication in war is one that permits of the transport of men and materials to the desired objective. Even today the railways are the first lines of battle; the struggle for them often decides a campaign. Similarly they are arteries of trade and civilization.

The railway may be used in war, but it is essentially the weapon of peace, devised for the help and not the complaint of mankind. British railway engineers would hardly push this claim to its logical conclusion by maintaining that they have worked with the direct object of reducing barriers between the human race. They would admit that they have laboured for wages and self-satisfaction alone. But there has certainly been the contingent phenomenon that the work of the

engineers first began the modern process of barrier-levelling between nations.

Thus a method had been found of distributing the products of the Industrial Revolution by land. What about the sea?

4

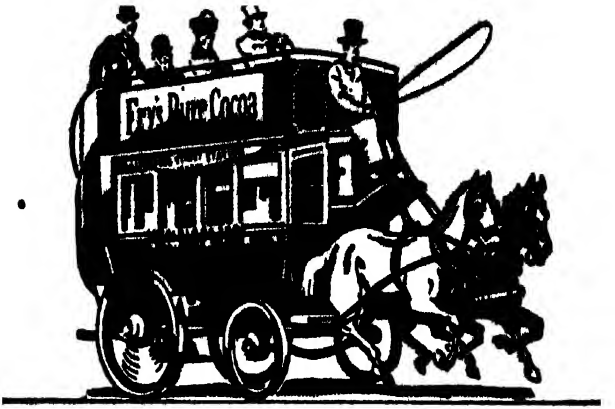
The first steamship was invented by another Scot, William Symington, in 1787. Robert Burns was present at the trials, in a Scottish loch. The same man constructed the second ship, the *Charlotte Dundas*, which sailed successfully in 1802. The Americans often claim that their own man, Fulton, was the originator with his *Clermont*, launched in 1807, but the dates belie that story, and besides, Fulton obtained all his plans from Symington and his machinery from Watt. Thereafter British engineers and seamen thrust steamship lines across the world, and discovered most of the improvements which made the modern ocean-going liner. The first ship of iron was built in Britain; the propeller was developed; the turbine invented. And a nation of merchant-adventurers immediately took advantage of the new opportunities.

Since the invention of the steamship Britain has often had more shipping on the oceans of the world than all other nations together. Her surveyors have charted the seven seas. Buoys, lighthouses and lightships, to reduce the perils of the sea, were first introduced here. The International Code of Signals was begun by Captain Frederick Marryat in 1817.

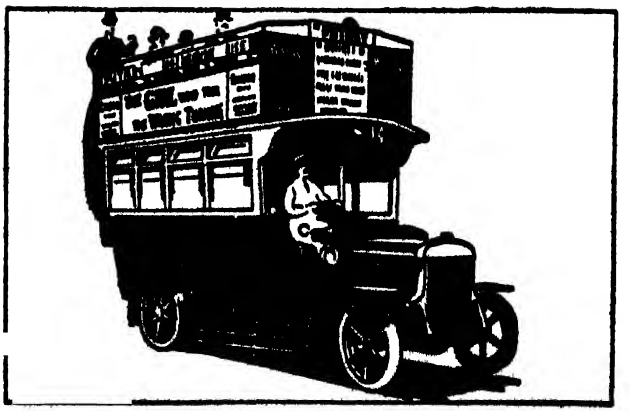
John Smeaton was the son of a Leeds lawyer, and was intended for his father's profession, but showed a strong inclination to mechanical pursuits. In 1753, after a course of foreign travel, he submitted plans for rebuilding Eddystone Lighthouse, which had been burned down, and his proposals were accepted. Hitherto lighthouses had been constructed of wood, in the shape of towers. Smeaton used stone, and modelled his building like an oak-tree, broad at the base, narrow at the centre, but broader again at the top. The result was the soundest and best lighthouse that the world had seen up to that time. During the work of construction, Smeaton discovered a novel method of binding the stone blocks, the first Portland cement. He was also the inventor of an improved blowing apparatus for iron-smelting.

Similarly the first unsinkable life-boat was invented by William Wouldhave in 1789, did service until 1830 and never lost a hand in that time, while it saved hundreds of lives. Marine insurance was devised to cover financial losses from the sea, and the London institution of Lloyd's became a common word to all languages. The timing of the world was first adjusted to the "mean-time" at Greenwich, and weather forecasting for shipping was developed in Britain.

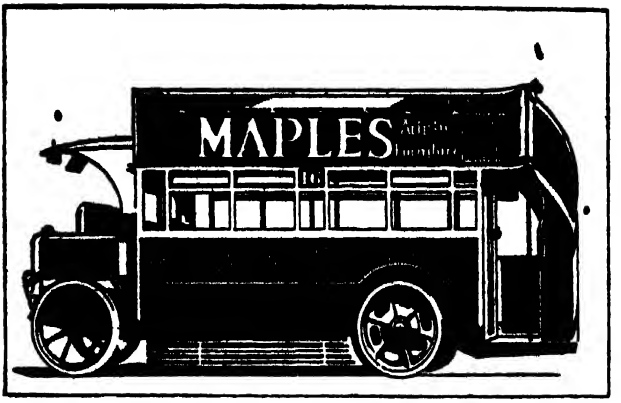
Samuel Plimsoll was a native of Bristol and member of the British Parliament. He was shocked at the negligence of some ship-owners, who loaded their vessels to the waterline regardless of the safety of their men. After much endeavour, he was responsible for an Act of Parliament, the Merchant Shipping Act of 1876,



The Horse-Bus



The "B" type Motor-Bus put on the streets in 1910 by the London General Omnibus Company



The Next Development in Bus Design: the "NS" type of General

The Contemporary Motor-Bus with driver's cabin protected by glass, covered top and internal staircase, and deeply sprung upholstered seats

that made it illegal to load ships above a certain mark. All British ships and the best of other nations bear this humanitarian and sensible sign. It is the outward sign of an attitude of mind that has resulted in many other inventions.

Thus the whole science of navigation, marine and aerial, is largely built upon British methods and devices. Hadley invented the sextant in 1731. Lord Kelvin improved the mariner's compass as we know it today, and he devised the automatic sounding machine to replace lead and line. The same scientist's measuring instruments and mathematical tables are to be found in every chart-room. The modern barometer was invented by Sir Henry Englefield. The idea has been to smooth the path, and to improve the instruments of peaceful endeavour.

It will not be denied that one of the most important mercantile developments of modern times has been refrigeration. The first shipment of frozen meat came from New Zealand in 1882, thanks to a British invention. Sheep were frozen on board the sailing ship *Dunedin*, and, after four months' delay, shipped to London. They arrived as fresh as when packed. Today this Dominion, the others, and South America have a great industry, thanks to that original enterprise.

A busy people had discovered how to harness machinery to industrial processes that they might supply the world with a multitude of goods. They had developed an ingenious method of transporting goods by land, the railway, and had established steamship lines across the seas. But they were not content.

5

John Loudon Macadam was a Scottish engineer who invented a process of road-making. He covered the highway with small pieces of hard stone of regular size, and formed a bed of them by heavy uniform pressure. Thomas Telford was a Scottish stone-mason who built roads by this method, and constructed many great bridges. Between them, these men prepared the way for the fast mail-coach, the brougham, the hansom-cab and the multifarious road transport of today. They taught the world how to escape from the tyranny of pot-hole and mud, and to bridge the boundaries.

A bridge across the highest waterfall in Africa, a dam across the Nile, a motor-track through the Khyber Pass, the longest cantilever bridge in the world, the widest single-span bridge—these have been the work of British engineers. Such enterprises have assisted men to prevail against self-made and natural barriers. Many of them will endure as Roman monuments when much has vanished.

In 1840 a Scottish blacksmith named Kirkpatrick Macmillan invented the bicycle. But it was a clumsy machine, and many improvements were needed. A wire-spoked wheel was invented by an Englishman some years later; the method of chain-drive was devised by another Englishman in 1879. Finally two Scots, J. B. Dunlop and R. W. Thomson, invented the pneumatic tyre.

Thus Britain had provided the roads, the bridges,

the carriages, the gadgets and the machine-method. A reliable means of machine-propulsion was now required. It was supplied by a Frenchman and a German. But once again British engineers took this device, the petrol-driven engine, and made it useful. The story will be told in a later chapter. It might, however, be thought that the British fathers of modern industry would have been contented now with the speed of their new communications. They were not.

In 1745 an Englishman named William Watson had asked members of the Royal Society to accompany him to the River Thames and watch an experiment. Whereupon he caused a current of electricity to pass across Westminster Bridge, and to return by means of the river itself, used as a conductor. That was the first telecommunication. Nearly a hundred years passed before it was found possible to transmit an intelligible message by electricity. This took place in 1812, the year when Napoleon Bonaparte dissipated the life-blood of a nation in his march on Moscow. An Englishman, Francis Ronalds, was responsible for the experiment, which led directly to the construction of the first electric telegraph in 1837 by Cooke and Wheatstone. The magnet, invented by another Englishman, played an important part in this development; the improved method of the electro-magnetic telegraph was patented by Wheatstone in 1840.

A London newspaper printed the first report by telegraph five years later; a murderer was captured by means of a telegraphic message sent to a railway station towards which he was travelling; Wheatstone invented

a machine to print telegraphic messages as they were received.

The application of any invention to the sea is inevitable in Britain. Jacob Brett, a Londoner, produced the first feasible scheme for a submarine cable, and a cable was laid between England and France in 1851. Next a company was formed to link Britain and America by the new means of communication. Practically all the capital was raised in Britain, and the engineer, Sir Charles Bright, was an Englishman. The cable itself was made at Birkenhead. Throughout the nineteenth century the British, like industrious insects, continued to extend these connecting wires beneath the oceans. There is an office in London today which contains an illuminated map of the world. This is covered with black lines, extending from London across all the seas to all countries. It is a map of British cables.

An American, Alexander Graham Bell, invented the telephone, an extension of the telegraph idea. But he was born in Scotland and received his education there. He also devised the first gramophone record. In 1863 Clerk Maxwell put forward his electro-magnetic theory, in which he showed, theoretically, that any changes in electrical conduction created disturbances in the ether that were propagated outwards into space with the velocity of light. This was the beginning of wireless, or radio telegraphy. An Italian, Marconi, brought the components together, and was the actual inventor. But his mother was Irish, and his first experiments were conducted on British territory with British appliances. The head office of the Marconi

system was established in London, and British naval vessels carried out experiments under working condition. The modern development of broadcasting and television will be dealt with later.

The modern industrial age began in Britain. The machinery, the means of communication, the commercial methods—they were mostly developed by the British, whether for better or worse. A great number of industrial processes that originated in Britain have not been mentioned. Only a sample has been given of the detailed story.

For instance, there is such an ordinary object of everyday life as the match. Until 1827 the only means of producing fire was flint, steel and tinder-box. One day in that year a chemist of Stockton-on-Tees named John Walker was experimenting with a solution of chemicals, when he accidently rubbed a stick on the hearth. The stick had been dipped in the solution, and it caught fire. That was the first friction match.

Imitation is the sincerest form of flattery, and the most lucrative. Other countries freely copied the industrial and mechanical innovations of Britain. Often they sent men to study the British industries, so that they could return and establish them in their own lands. A considerable number of young Japanese visited the cotton-mills of Lancashire, the motor-factories of Coventry and Birmingham, and the shipyards of the Clyde a few years ago. They carried notebooks and pencils in their hands; they asked how this was done, and that. In due course they returned to their own country and established very successful

cotton, motor and shipbuilding industries there. British trade-marks were often affixed to the imitative products. The Japanese produced a "Baby Austin" car, and "Manchester" sheeting, as well as many products of "Sheffield" steel.

Here was final proof of the value placed by other nations upon the British industrial contribution.

Chapter V

Sport

I

To govern oneself certain qualities are needed. The following story illustrates one British method of securing these. In November 1914, at Ypres, General French needed a reliable officer to carry important dispatches across an area exposed to enemy fire. His aide-de-camp mentioned an officer's name. The General hesitated. "Is he completely reliable?" he asked. "The man I want must be a super-man. What do you know about him?" The aide thought for a moment. "Well," he said, "he's played Rugby football for South Africa against England." The General's eyes brightened. "A rugger man, eh? Call him in."

The British cannot claim a monopoly in the origination of games or sports. The Greeks possibly played very similar games to those regarded as of recent British invention; the Romans cultivated sports as violent. But the modern world is indebted to Britain for the organization of many outdoor pastimes, and, above all, for the method of playing them, that "sporting spirit" which is today's equivalent of the medieval chivalry.

Golf may have originated in Holland, but Scotland gave the game rules, both written and unwritten.

Perhaps football is the most popular British sport today, and the one that has spread most to other countries. But it is barely a hundred years old in its present form. The rules of what is known as Association football were drawn up at a meeting held at Cambridge about 1849. Prior to that men in all lands had kicked balls or stones as an occasional amusement; they had even organized themselves into teams. But this had been haphazard and unsatisfactory. Rules were required. Once they were provided, football became the regular pastime of thousands. This game appealed particularly to the people because it could be learnt easily, and great skill was not required to play it. Moreover, it made a fine spectacle, a game that could be followed by all.

At the beginning of this century football had thousands of players and millions of supporters in Britain, but had not spread to other countries, save the United States of America. During the last forty years it has become popular in many lands, particularly in France, Holland, Belgium and Germany. It has been enthusiastically played in Spain, Portugal and Italy, and has been adopted by the Japanese and Egyptians. Baseball is its only superior in the United States (and baseball originated in the old English game of rounders). The British rules have often been altered to suit local conditions, but have always been the basis. The universally used names of the different kinds of football prove this.

Soccer, the game of *foot*ball alone, wherein it is not allowed to touch the ball with the hands, is so-called as an abbreviation of Association, and the Football Association is the British body that controls the game. Rugby, wherein it is permissible to carry the ball as well as kick it, was first played at the English public school of that name. It is proudly recorded that in 1823 a boy of that school, William Webb Ellis, suddenly took it into his head to catch the ball during a game and to run with it, and that this type of play appealed particularly to public school men ever after!

Yet the origin of the Rugby type of the football game has an appropriate significance. It has been said that the British had to discover a method of governing themselves. At the same time they desired to concentrate upon trade, and to fight only when others interfered with their busy traffic. A method of government must be devised so that men could work in freedom within the realm; a Navy must be strong enough to secure the freedom of trade-routes outside it. In addition, however, an outlet must be found for the strong instincts of a virile people that would formerly have found their satisfaction in internal quarrels and outside wars.

2

England did not have a dictator to say, "Very well, we shall develop organized games and sports to give our young men the outlet which they might otherwise seek in war and rebellion." At first there was no con-

scious planning of this kind. There was such planning later, as shall be shown, but at first English games and sports were developed unconsciously as a substitute for fighting. Therefore they were brutal at first.

It has been said of Rugby football in the early days that "one great principle actuated the players—that it was immaterial if, in kicking for the ball, they kicked their opponent's shins." An old Rugby man has related how he once saw a player rush through all opposition and "finish his triumphal progress by kicking a half-back clean off his legs." Only a few years ago, during a tour of Britain by a Rugby team from one of the Dominions, a player appeared at breakfast with a deep gash on his face. When asked how he had suffered this wound he replied that the previous evening, confronted by a plate-glass window in a shopping thoroughfare, he had been suddenly moved to leap through it, just to see whether such a feat was possible. (The player was a teetotaller.)

The first official rules of Rugby football, drawn up by the Rugby Union in 1871, ended some of the more sensational methods of incapacitating an opposing player, but the game has remained a prime example of the British genius for harnessing dangerous forces to comparatively harmless ends. As such, it has spread widely. France has liked it. A British team which visited the Argentine in 1927 found many good players there. Perhaps the most spectacular Rugby football today is played in the British Dominions, where the young men are most high-spirited and least scarred by real warfare. Of a recent Rugby football team that

came from South Africa to tour the British Isles, one player was 6 ft. 3½ in. tall, another weighed 15 st. 10 lb., and the average weight of the forwards was 14½ st., while every man was a fast sprinter.

To achieve real fame in South Africa, remarked a distinguished visitor, it was apparently necessary either to serve a long term of imprisonment for a political offence, or else to excel as a Rugby footballer. An Englishman became head master of a great school in a British Dominion. He was told about one boy that he was always getting into trouble. "Has he no good feature at all?" asked the new headmaster. "He certainly plays a good game of Rugby football, the lazy young devil," was the reply. "Lazy and plays a good game of football!" exclaimed the head. "You are speaking of incompatibles. We'll have that boy at the top of the school in next to no time." The prediction was fulfilled.

Eton has its peculiar sport known as the Wall Game. It is played under a wall that is distinguished by a white stone, which was originally inserted to commemorate a fight between two of the boys in 1805. This fight had resulted in the death of the vanquished. The story is grim, but lends point to the legendary remark of the Duke of Wellington that the battle of Waterloo was won on the playing-fields of Eton.

The British no longer boast about legends of this kind. Their conception of sport has changed since then. The game that they like to give the world today is cricket.

Perhaps cricket did not begin in England, but it has

been played there for many centuries, and has lately assumed the character of a national religion. It is customary today for a poet, when he desires to show his love for his country, to write an essay on village cricket. It is proudly remembered that the regicide Oliver Cromwell played at least this game. Cricket was first introduced to the outside world in 1676, when, it is recorded, a ship of the Royal Navy called at Antioch, and some of the ship's company rode up to Aleppo, where they "did in a fine valley pitch a princely tent, and divert themselves with curious sports, including Krickett."

The game has accompanied the Briton everywhere. Soldiers, sailors, traders and missionaries have left it as a happy legacy in many lands. The Light Division played a game at Lisbon before the battle of Busaco. Some of the British secretariat enjoyed it on the Prater during the Congress of Vienna. The game was played in Italy in 1828, in Corfu during the British protectorate, in Odessa in 1881; cricket clubs were formed nearly one hundred years ago in Geneva and Oslo. The Dutch and the Danes have become the most proficient at the sport, which has spread rapidly to other countries during recent years. Two British teams, under Lord Hawke and Sir Pelham Warner, have visited the Argentine, where they found much enthusiasm for the game.

The British exported football to those countries which desired a vigorous sport to absorb the surplus energies of their young men; they send cricket overseas as a silent ambassador of the modern British

spirit. It is a curious game. The player who sets his mind upon making a large score, or taking many wickets, or a great victory for his side, never enjoys it. He is doomed, by the very nature of the game, to frustration or a hollow triumph. He must play for the pure enjoyment of playing, or condemn himself to embitterment. He must learn to govern himself.

Cricket was devised by aristocrats, but it is democracy at play. The English public schools have nurtured it. There is a story about the school Uppingham and its head master Thring. The story goes that a young and very keen assistant master, eager to ram some grammatical point into the leaking little minds of his class, kept them in two minutes over time, that is a little beyond midday. The head master encountered him, a menacing figure. "Now, look here, young man," he roared, "we must come to an understanding about this: is it to be cricket or is it to be books?"

The public schools have taken the game to India, and princes of that land have been among its finest expopents. But the game's influence runs deeper than that. Someone has recounted how he found a group of tattered urchins playing cricket in a narrow London street. They had what appeared to be the leg of a chair for a bat, and their ball was a stone. But the spectator observed to his horror that a baby was sitting in the road among the players, and was directly in the line of the bowler. He hurried forward and grabbed the baby just as the stone came hurtling towards him. "Hi, mister, what are you doing?" shouted an indignant urchin. "He's our wicket!"

The British Contribution

Members of the so-called British aristocracy have certainly nurtured the game. Some old families have devoted all their lives for several generations to its improvement. There is the case of the Lytteltons.

Perhaps the most famous member of this family was the Hon. Alfred Lyttelton. On several occasions he kept wicket for England, but he was also a brilliant batsman, very popular with spectators and a useful bowler. The outstanding feat of his cricketing career was performed during the match England versus Australia at the Oval in 1884. England was in a difficult position. Australia had made 532 for six wickets; it was a blazing day; and every member of the English eleven save Lyttelton, the wicket-keeper, had bowled. As a desperate last resort the English captain, Lord Harris, called upon the wicket-keeper, who is not expected to excel at any other job. With a fast bowler at the other end of the pitch, Lyttelton kept on his pads, and proceeded to bowl slow lobs. He dismissed the four remaining Australian batsmen, Midwinter, Blackham, Spofforth and Boyle, for eight runs.

Alfred Lyttelton was the most popular batsman of his time because of his supreme contempt for even the best fast bowling. He thought of the game before runs, and hit out from the beginning.

Neville was the brother of Alfred. He had a short cricketing career, but scored over 800 runs with eight "centuries" during that time. Another brother, the Rev. the Hon. Edward Lyttelton, D.D., a famous divine, secured a greater fame by twice "catching-out" the redoubtable Dr. W. G. Grace, the best all-round

cricketer England has produced. People would walk fifty miles to watch Grace play. Yet another of the Lyttelton brothers, Robert Henry, wrote a popular book on cricket. The eldest brother of this remarkable family later became Lord Cobham. His son played for Eton and Worcestershire; his grandson, the Hon. C. J. Lyttelton, is a well-known player today.

The poet Byron was a member of the Harrow team in the first Eton-Harrow match played in 1805.

3

Yet the greatest cricketer so far produced by the British race was reared in the Australian bush, and learnt to play by throwing an old golf-ball at the brickpart of a disused tank a few yards away, then trying his best to hit the ball, on the rebound, with a crude bat fashioned from the limb of a gum-tree. That boy was Bradman.

He has said himself: "I was never coached; I was never told how to hold a bat. I was my own teacher, and the first bat I ever used was the limb of a gum-tree. No boy lived near enough to my house to join me in a game, and as often as not I was left to play alone.

Bradman's fielding in important matches has gained him just renown. How did he acquire the art? According to his own version, in intervals of the batting practice aforementioned, he would stand a short distance from a fence, and throw a golf-ball hard, to rebound from a given spot on the rounded rail. He was kept up to the mark by the knowledge that if he did

not hit the correct mark the ball would glance off at an angle, and he would have to go and look for it. But when the ball hit the correct spot it would come straight back into his hands.

The youngster went to a local school. He was selected for the principal football team, represented the school at tennis, and in athletics he won the 100 yards, 220 yards and the quarter and half-mile championships. While he was still in the junior school, Bradman was selected to play in the senior cricket team, and carried his bat for 55 runs at the age of eleven. The following year he scored his first century, 115 not out, from a total score for the side of 156.

When Bradman was thirteen, his father—a carpenter—took him to Sydney, where he saw a first-class match on the Sydney cricket ground. "I shall never be satisfied until I play on this ground," said the boy, and his father smiled. A few years later Bradman attained his ambition. At seventeen years of age he amassed the record score of 300 against a local team. At the age of twenty he was playing for Australia. Since then he has broken most cricketing records. Bradman is the national hero of Australia. There is a profane Australian version of the Lord's Prayer, which ends: "For ours is the Harbour, the Bridge, and the Bradman, Amen."

4

Freak demonstrations of the British sporting propensity have been transferred from the Mother Country

(By courtesy of the High Commissioner for New Zealand)

"Le Sport"—A New Zealand Example

(By courtesy of the Boy Scouts Association)

Boy Scouts of Holland, America, Norway, Poland, Scotland

to the overseas Dominions and Colonies in recent years. Some of the greatest Rugby footballers have come from New Zealand, a small Dominion with a population less than that of many European cities. A wholly disproportionate number of remarkable aviators have been New Zealanders. But the old British sport of horse-racing, nowhere developed to such a fine degree as in British countries, has here attained its apotheosis.

At a recent race-meeting in New Zealand the money paid into the totalisator—the betting machine which is itself a New Zealand invention—was equal to £1 per head of the local population. New Zealand enjoys about 320 race-days a year, with about 2,500 separate events. Everyone in New Zealand is a racegoer. Wages and hours of work are strictly governed by law, and the principal race-days are legal holidays. If one of them were cancelled for no good reason there would be a minor revolution.

Racing clubs in most countries are organized by private enterprise; in New Zealand they are little democracies, organized by the people themselves. The separate clubs are affiliated to a national body known as the New Zealand Racing Conference. This is veritably the parliament of the sport, and is unique among racing control authorities throughout the world. The clubs are compelled by law to give ninety per cent. of their revenue to stake money, so the winning horses receive large prizes. Poor men find it profitable to own stables. A New Zealander has related that his gardener owned three horses, and one year earned £5,000 in prize money.

The popularity of racing in New Zealand can be traced to two facts. One, the New Zealanders are a British people and enjoy rather more leisure than most British peoples, so everyone has time for attendance at race-meetings. Two, the pastures of this country are very fine. Horses are so hardy that it is not at all unusual for one of them to race thirty times in a season. Carbine, Trenton, and Phar Lap were New Zealand horses. When a bookmaker was recently sentenced to two months' imprisonment for illegally accepting bets, thousands of people signed a petition for his release. It must be recorded, however, that he was not released.

In another place the tale is told of British horse-breeding, which has been responsible for some of the best thoroughbred strains in the world. The aim of breeders, in this and other branches of animal husbandry, has been to produce fine all-round specimens. The same applies, perhaps, to British sportsmen and athletes. The use of sport as a means of absorbing surplus energies was unconscious at first. But eventually it became clearly understood by educationists, and what had formerly been a happy chance was deliberately fashioned towards an end, particularly by the public schools. The methods then adopted by these unique institutions have since been copied widely in other countries. When the Nazis proclaimed to Germany that youth should be taught to act first and think afterwards, they were endeavouring to remedy certain defects in the German character by application of what they thought were British methods.

Unfortunately the Nazis copied the externals of the

British system without observing some inner essentials. They took the brutality, the strength and the emphasis on "cricket before books," but ignored other, less noticeable, equally important elements. For instance, the English sportsman is taught, above all things, to play fair. The very word "sportsmanship" has taken a new meaning in the English language, approximating to "chivalry." The Englishman does not like to pose, but his conception of "sport" is certainly a contribution to civilization. And above all things, he looks upon the "all-round" man as the best sportsman.

Here is an explanation of the fact that Britain, although she has taught the world how to play most modern games, and enjoy most modern sports, has often been beaten by other countries in international contests for the crowns of those very games and sports. She has never taken happily to the method of training a player or athlete for one task alone. But it is possible that if an international competition were held to find the best all-round sportsman in the world, by contests in several different games and sports, from tennis to golf, and horse-riding to markmanship, the winner would be a Briton. There is resiliency here, and a widely diffused ability. The British system has been to train character as much as muscle. When players are chosen for British cricket teams to tour in other countries, their ability at cricket is not the only consideration. They are required also to possess high principles, good manners and, above all, the capacity both to win and to lose "gracefully." This may have a bad effect upon British chances in some international events, but it has

had a uniformly good influence upon contemporary civilization.

5

Most of the sports and games already mentioned are non-mechanical. Perhaps they belong already to a vanishing age. The sportsman of the future may perform all his deeds in a machine. Today's daring young man on the flying trapeze is suspended from an aeroplane which flies at three hundred miles per hour. Will the British continue to contribute their share of deeds and inspiration in this new element?

The best answer to that question is provided by a review of British achievements already. Henry Segrave startled the world in 1929 by driving a racing-car at two hundred and thirty-seven miles per hour, and establishing an absolute speed record for the land. Other Englishmen since then have increased that speed and continued to hold that record. Similarly the speed records on water and in the air have several times been broken by Britons. A complete review of such achievements would fill several books of this length. Wilkins, the man who travelled under the Arctic ice in a submarine, was an Australian. The first man to fly over Everest was a Scot. Daring men of this British race in the clumsy little machines of their time have, during a single generation, deprived the earth of a mastery that she had exerted for centuries over their movements. British airmen already have humanity in their debt.

Sir John Alcock and Sir A. Whitten Brown made the

first direct flight across the Atlantic Ocean. A British Army airship, the R.34, made the first dirigible flight across that ocean and back again. Sir Charles Kingsford-Smith flew across the Pacific from California to Australia and was a pioneer. The great airways of today follow the routes so dangerously mapped by such men. Kingsford-Smith also joined Australia and New Zealand across the most perilous Tasman Sea by air. Two young South Africans flew from Britain across Africa to the Cape of Good Hope in 1920 and blazed another pioneer trail which is now a busy aerial highway. In 1937 two Royal Air Force men did the same journey non-stop.

Another route, between Britain and Australia, was the longest and possibly the most dangerous in the world. It was consistently doubled and re-doubled by young British record-breakers, among them an English and a New Zealand girl, both of whom flew by themselves in the smallest and cheapest aircraft available. That Kingsford-Smith, who has already been mentioned, perhaps the greatest airman the world has yet known, finally sacrificed himself on this most significant of the world's air arteries. He had made his first flight at the age of five, after looking at a picture-book about early aviators. He "took off" from the roof of his father's barn at Longueville, near Sydney, with an umbrella as parachute, and crashed, with a broken arm and collar-bone.

The first man to fly across the South Atlantic from east to west, the most difficult direction because of the contrary winds, was Mollison, the English pilot. An

Australian, Hinkler, had previously flown solo from west to east.

The Second German War soon proved the fighting ability of British airmen. The preliminary story of the first British ace may be quoted. His parents were born in England; his uncle was a famous test pilot of the First German War. The boy himself was taken to New Zealand at the age of eighteen months; from an early age he was ambitious to become an airman. He occasionally signed letters to his mother from school as "Airman ——." He finished his school career by winning the senior sports and the boxing championships. He won a gold medal for marksmanship. It is recorded that on holiday he was discovered by a farmer to be shooting with a pea-rifle at his cows. When interrogated, the boy grinned and replied: "I just wanted to see if I could shoot straight."

The boy learnt to fly in New Zealand as soon as he left school. His ambition immediately, like that of so many young overseas Britons in that generation, was to travel "home" and join the Royal Air Force. This ambition was satisfied, and he became an officer. On the outbreak of war he was transferred with his fighter squadron to France, where he soon achieved local renown by roaring over wondering housetops at low levels. His wider fame was an early product of the intense aerial warfare that began in the spring of 1940. He was the first pilot to shoot down five German aircraft. He was decorated for his bravery in attacking seven German machines single-handed, and in destroying one of the fighters even though his own aeroplane

By courtesy of the Boy Scouts Association

Boy Scouts of Norway, Sweden, Scotland, Hungary, England

(By courtesy of Messrs. Thos. Firth and John Brown Ltd., Sheffield

"The Birth of Stainless Steel"

was badly damaged, and smoke and oil fumes filled the cockpit. Afterwards he was unable to see his compass, but skilfully piloted his machine back to the Allied lines.

Thereafter the boy's story merges into that of a thousand others, the multifarious record of the Royal Air Force in the great air war, and it ends abruptly. It is quoted primarily as a modern example of the British system in action. Such examples filled the honours and casualty lists of the newspapers during this most testing of wars. A young naval officer, son of a Church dignitary, was killed in action. At Oxford he had excelled both in academic work and in athletics. He had been awarded a first in Greats, the highest classical honour attainable by an Oxford undergraduate. But he had won his cricket Blue at the same time, had kept wicket for Oxford for two years, and had distinguished himself as a sprinter and boxer.

To produce a pile of goods is not enough; to invent machines alone is insufficient; to establish a method of self-government is but half the battle won. Minds and bodies must be attuned to the requirements of these professions. Men must be made who will not flinch, swerve, nor descend to ignominy. Thus Britain has been responsible for the modern development of "the sporting spirit," because it is one of the best tutors of manners, the guarantee of self-control.

Chapter VI

Defence

I

There is a curious, even a significant pride in the Englishman who refers to yet another of his characteristic sports as "the noble art of self-defence." This is boxing. An old English dictionary goes further to define the sport as "a useful and commendable art, inculcating the principles of self-defence and the scientific use of the fists in a just quarrel."

Roger Bacon lived in the thirteenth century, and was a philosopher and founder of modern science. He invented the air-pump and spectacles, and laid down the principle of the telescope. Elsewhere he speaks in his writings of a mixture of sulphur, charcoal and saltpetre, which, detonated, would make "a horrid noise like thunder." This did not signify that Bacon had invented gunpowder. Indians and Chinese, Arabs and Greeks had already been acquainted with a similar compound. But Bacon's recipe in his book *Opus Majus* brought the invention to the attention of Europe.

Gunpowder, in the Royal cannon of successive British kings, breached the donjon wall of the feudal

knight's castle, and helped to bring down a system of overlordship that had long oppressed the people. Gunpowder was assisted by another British military development, the long-bow, that destroyed the personal tyranny of the knight in armour. These hitherto well-protected gentlemen soon descended from their horses when the battles of Crécy and Poitiers had demonstrated the vulnerability of their breastplates. The British yeomen with their long-bows stood in line and waited for the armoured horde to approach. They waited until the last moment, pulled their strong bows, and the horde crumpled into the dust. This was the defensive weapon *par excellence*; it destroyed a long military tradition and the power of an aristocracy.

The centuries passed. Armour vanished entirely. The British method of fighting remained substantially the same, with guns for long-bows. When Wellington defeated Napoleon he arrayed his men in regular lines, and reserved their fire until the dashing French columns were almost upon them. This manœuvre was only made possible by the cool nerve of the men. But it was essentially a defensive method of fighting, and as such did not achieve brilliant results until the enemy had exhausted himself in attack. Thus arose the saying, attributed to the great German strategist von Moltke, that in all their different campaigns the British had rarely won more than one battle, but that was always the last one.

The invention of the machine-gun, with the improvement of artillery, reduced the value of this British line tactic. The inventor of the first successful machine-

gun was an American, Hiram Maxim, but he worked in Britain and later acquired British nationality. Sir James Dewar invented cordite, and shrapnel was the discovery of a Colonel Shrapnel in the British Army. It was found in the war of 1914–18 that men could no longer wait in line for attack, or advance in line. They must dig into the mud like moles and hide themselves, or perish. There was complete stalemate on that first Western Front. The opposing armies had bombarded and machine-gunned each other into a state of troglodytic immobility. A way through the fire-curtain must be discovered at all costs. The British invented the tank.

There are two kinds of military aircraft, fighter and bomber. The first is a defensive weapon, not devised for purposes of aggression. Its purpose is to defeat the bomber, whose object is to terrorize and destroy land-dwellers. The first direct long-distance flight of military aircraft took place in Britain. The first types of war aircraft were built in Britain five years before 1914. The first big work accomplished by aircraft in the war of 1914–18 was by the observation planes which prepared the way for the victory of the Marne. But the British first built fighters; and to this day the genius of the race has found most satisfaction in these machines that overcome air-bullies. The best fighters in the Second German War were soon found to be British, and they included features that were eagerly copied by other nations. The most remarkable single invention of the air war at first was the power-driven gun-turret of the British bombers, reconnaissance aircraft and flying-boats, another defensive weapon.

These aircraft entered the war with a glass that would resist a point-blank bullet. Armoured cars on land had bullet-proof pneumatic tyres, another unique invention from the nation that had produced Dunlop. The British soldier, in the First German War, had the only steel helmet that offered reasonable resistance to shrapnel, thanks to the British improvement of manganese steel. The first gas-mask had been invented during the 1914–18 war by a Canadian, Colonel G. C. Nasmith, as an antidote to the first gas-attack, a German invention.

The Royal Navy has been mentioned before in these pages. The claim has been put forward that its main functions have been to defend British possessions, and to police the seaways of the world that trading ships might sail freely. As long ago as 1295 the herring fishermen of Holland and Zeeland asked British ships of war to protect them. In the fourteenth century British kings were described as "guardians of the seas." James I sent his navy to the Mediterranean three hundred years later to operate against the pirates of Algiers, who had terrorized the shipping of all nations. Admiral Blake operated against the same sea-pests during the Commonwealth; and they were finally exterminated by Admiral Lord Exmouth in 1816. The Dey of Algiers was forced to surrender, and twelve hundred Christians were released from a terrible slavery. The Mediterranean was free to the shipping of all nations.

The naval victories of Nelson strangled Napoleon, who would otherwise have been master of the

world. Admiral Lord Hood gave his opinion that Nelson's battle of the Nile alone "preserved from anarchy, distress and misery the greatest part of Europe."

It is not generally realized that when the Spanish possessions in South America struggled for and obtained their independence, they were helped greatly by British sea-power and by officers of the Royal Navy. The British Foreign Minister, Canning, declared at the time of the South American emancipation that no European Power should be allowed to help Spain against the rising colonies. Britain then formally recognized the independence of the South American States, and her ships patrolled the Atlantic carefully. A large number of Englishmen fought by the side of Bolivar the Liberator. Many British naval officers, whose active employment had ceased with the European wars, joined the new republics of the West as expert advisers. They helped to build up the various South American navies, that the colonists might be assured of protection against Spain.

Pirates of Borneo, China and the Persian Gulf were swept away by the Royal Navy. The slave dhows of East Africa were captured and transformed into peaceable local traders. Slavery itself could never have been abolished without the patrolling vigilance of the Fleet. Greece, in 1827, wished to be free from Turkish oppression; she appealed to, and was helped by the Royal Navy, that destroyed the Turkish Fleet. As a proof of impartiality, Britain later put the same weapon at the disposal of Turkey itself. Lord Beaconsfield

saved Constantinople from Russian invasion by sending a British Fleet thither.

At one time and another the Royal Navy, in most parts of the world, has had to act as fireman, ambulance-man, life-boatman, doctor, refugee-carrier, and there is a recorded case of midwifery. If there is hurricane, earthquake, revolution, flood, a ship of the Navy inevitably makes its appearance, and helps.

The American discoverer of the North Pole, Commander Peary, said that Britain had done more for Polar discovery than any other nation. Scott and McClintock, among many others, were naval men; all the British Polar explorers had naval aid. Cook was a captain in the Royal Navy and unfolded the Antipodes on its service. His discovery of a method of overcoming scurvy among sailors on long voyages, supremely important in the history of seamanship, is but a small sample of similar services given by the Royal Navy from the beginning. British naval men developed the sport of yachting, and taught it to the United States, to France, to Germany and other countries of Europe. Wealthy South American yachtsmen know to whom they owe their skill and craft. German yachting, until recently, was conducted in British hulls, often manned by British seamen. The Japanese learnt how to build ships in British yards, and soon they were able to replace the British naval vessels they had bought with hulls of their own good construction. British naval officers taught them the usages and methods of a modern navy. The success of the Japanese against the Russians in 1904–5 was largely due to this.

In naval construction Britain has not always been an originator. Spanish and French built better warships in early days. French, Germans and Americans have rivalled her designers in recent times. But it is worth recording that the British first dispensed with the old method of mounting guns in portholes, and introduced the system of firing by broadside. Gunnery experts of the Royal Navy consistently improved the standard type of naval gun. Robert Whitehead, a native of Bolton, invented the torpedo. The Royal Navy was the first to adopt the screw propeller, in 1843. A great many improvements in design followed the original research of British naval technicians during the nineteenth century. Sir Robert Sepping invented the rounded stern of the man-of-war, after studying the shape of a duck. The work of Scott Russell, Froude and other members of the Institution of Naval Architects, founded in 1860, resulted at last in the famed *Dreadnought*, a battleship that suddenly made all others obsolete.

But it was the organization of the Royal Navy as a whole that could best be assigned as a British contribution. To this day no other Power has developed such a uniformly efficient fighting-machine of the sea. The original navy, in the modern sense of the word, was the British Navy. And the employment of that weapon, primarily to preserve the freedom of the seas for all who wished to travel and trade lawfully, was a peculiarly British conception. The wars of this country have mainly been fought by sea and not by land. They have not by their deliberate strategy devastated whole provinces. Their object has usually been defensive;

certainly they have never been conducted with popular approval under any other terms. It is probably because of her method of warfare that Britain can still claim to be the only Great Power that has never injured the vital interest of another European people by annexation.

3

A cynic has said that to understand the Englishman it is necessary to listen to his jokes, however painful that experience may be. Here is, perhaps, the most potent weapon of all in the British armoury, an attitude of mind towards warlike adversity which must be regarded as a fundamental part of the British legacy to civilization. It shall be illustrated from some contemporary sources.

The man who seized the author of this book by the arm soon after the declaration of war against Germany, to confide the news that Hitler was in hospital as a result of falling over a Pole in the Corridor, was not displaying a flippant mind. He was informing his friends that war held no terrors for *him*. Thus humour is the Englishman's armour against adversity.

Humorous contempt rather than violent hatred for the Nazi leader, and for the leading members of his entourage, was daily expressed in a multitude of quips, jests, sayings and popular songs, reminiscent of the ballads on "Boney" at the time of the Napoleonic wars. Hearty choruses of such songs as "Run, Adolf, Run," and "We're Going to Hang our Washing on the

Siegfried Line," indicated better than any political analysis what was the spirit of the common Englishman. The climax of this type of humour was reached in the first days of the war, when a popular paper published full-page descriptions of the Nazi "Big Four" in the style of "Price on His Head" advertisements issued by the police. One of the most popular wireless programmes weekly retailed the adventures of "Itma" and his confederates "Funf," "Fusspot" and "Bodkin." The labourer discussed over his beer the respective demerits of "fatty Goering," "little Goebbels" and "Dribblingdrop."

But the story of the Cockney charwoman who inquired if it were true that Hitler had once been a painter and decorator, was perhaps the most revealing of all. On receiving an affirmative reply, the charwoman remarked dubiously: "Hm, yes, so's my husband. They're all the same." This is only matched, indeed, by the yarn about the newspaper seller in Ludgate Circus, who exhorted the passers-by: "Here you are—good laugh for a penny. Hitler's speech in full!"

Commenting on a remark by Goebbels that "Germans now know where they stand," a London bus conductor said: "Yes, in a queue waiting for three-quarters of an ounce of synthetic tea." And much was made of a Paris report that, whereas thirty-four inmates of a Saar lunatic asylum had declared themselves to be Hitler before the war, only twelve still claimed that doubtful distinction once war had been declared.

At least twenty people in all walks of life attempted to tell the author a story about a Russian in Berlin,

who remarked to his German guide: "I see that Hitler Strasse is late Bismarck Strasse, and Stalin Strasse is late Friedrich Strasse." Whereupon the Berliner replied: "That is so, comrade, late Bolshevik scum." But there was a slightly different ring to the reported conversation in a Regent Street bus between a woman who was expressing strong views on Moscow, and a weedy conductor who eventually replied: "I can assure you, madam, as a member of the Wandsworth branch of the Communist Party, I happen to know that Stalin is playing the right game for this country."

The daily, or rather hourly, telling of such stories revealed an attitude of mind. Perhaps one of the most irksome features of the war in the early days was the necessary evacuation of large sections of city populations to the country. There was much anguish at parting, much discomfort and maladjustment, much strain on the patience of country-folk. But all was tempered by a running commentary of characteristic good humour. One youngster told his country host that "the war will not last long now." On being pressed for an explanation, he continued: "Well, father has just been called up for the Army, and mother says he never keeps a job for longer than a month." Another Cockney child was discussing the war with a country clergyman, who had foolishly committed himself to the opinion that it might not last for longer than a year. "Ah, but we said exactly the same thing in 1914, didn't we?" replied the toddler. Possibly it was the same child who informed her teacher that the equator was "a Maginot Line running round the earth."

Stories like these, circulating in club and bar, wardens' post and sewing guild, undoubtedly helped Britain to bear the minor hardships of those early days. Even the "black-out" each night did not unduly depress a people who could extract fun from the most uncomfortable restrictions. "Put out that light," shouted an A.R.P. warden to a weary householder, who replied patiently, "That's the moon, mister." "I don't care what it is," bellowed the warden: "Put it out!"

An obvious desire to take vigorous action against the enemy was revealed at that time by a number of stories about the leaflet raids over Germany. It was said that one of the R.A.F. pilots returned to headquarters four hours after he was due. His commanding officer demanded an explanation. "Well, sir," he answered, "all was so quiet that I went down and pushed them under the doors." Another pilot returned much earlier than the others. It transpired that he had dropped the heavy parcels of leaflets without undoing them first. "Good heavens, man," exclaimed his commanding officer, "you might have killed somebody!" And it was doubtless the same pilot who asked his C.O. later: "Well, sir, what do I drop on them now, leaflets or ration cards?"

The scene was the deck of a destroyer in the North Sea. The first lieutenant approached the captain.

"Why have we stopped, sir?"

"There is an enemy submarine immediately below us."

"Shall I get busy with the depth charges, sir?"

"No, I'm sending down a diver with leaflets."

So England laughed, and laughs. But it would be

wrong to judge from his light-hearted attitude that the Englishman is never serious in a determination to fight and win. Laughter can sometimes be a danger-signal, as it is always a revelation of confident strength.

The chief interest of Britain from very early days has been the preservation of peace, so that she might concentrate upon the breeding of her cattle and horses, the building of her factories, the extension of her markets. Therefore she has always ranged herself against any Power that has sought to disturb the peace. Allied to this has been a strong religious motive in the British character, derived directly from the teachings of Christianity, which has stimulated the British people invariably to take the side of the *attacked*. Without this spirit in the people, it is doubtful whether shrewd British politicians, seeking to protect narrower interests, would always have been able to arouse the country for war.

But it is obvious that the world must owe more to a nation that has principally aimed to preserve the peace than to others whose object has been to break it. Whatever the British motive for fighting against oppressors, from Saladin to Hitler, it is as well for the world that the British did have a motive, and did fight.

Chapter VII

Health

I

Roger Bacon gave the world a recipe for gunpowder. He also pointed the way to greater discoveries, writing in the year 1240: "We will be able to construct machines which will propel ships with greater speed than a whole garrison of rowers, and which will need only one pilot to guide them. We will be able to propel carriages with incredible speed without the assistance of an animal. And we will be able to make machines which by means of wings will enable us to fly like birds."

Bacon was the first of the British scientists who have laboured to help humanity. He invented spectacles, an instrument, he said, "which is useful to old persons who have weak eyes," and he planned the first telescope and microscope. Here are his words again: "Glasses or diaphanous bodies may be formed so that the most remote objects may appear just at hand, and the contrary, so that we may read the smallest letters at an incredible distance, and may number things, though

never so small, and may make the stars also appear as near as we please."

Thus the sequence of this country's contribution to human progress may be traced a step further—mechanical invention, a system of government, a means of absorbing and disciplining surplus energies, methods of self-defence, and now the conquest of natural forces to improve, in the widest sense of the term, health. Another Bacon (Francis, Lord Verulam) wrote a series of books in the sixteenth century known as the *Novum Organum*, which described possible methods of scientific research. Robert Boyle was among those who were directly inspired to practical effort. He perfected the air-pump. Boerhaave expressed the admiration of Continental scientists for Boyle when he wrote: "To him we owe the secrets of fire, air, water, animals, vegetables, fossils; so that from his works may be deduced the whole system of natural knowledge." But the grand discovery of this pioneer was the scientific law which bears his name—the Boylean law of the air's elasticity, first propounded in 1650. Here was another queer Englishman, who devoted to missionary work in New England £300 a year, during his life, and by his will bequeathed to the same object £100.

John Wallis similarly pioneered the science of mathematics at this time; and the path was being prepared for the greatest British scientist of all, who literally taught the world to know itself. The story of young Isaac Newton and the apple, unlike many biographical legends, is strictly true. While Newton was at Cambridge plague visited the city and the undergraduates'

were "evacuated" to the country. Newton recorded afterwards that it was while sitting in his grandmother's orchard, heavy with fallen fruit, that he began to speculate upon the law of gravity. His mind sprang instantly from that falling apple to the planets, the universe, and the binding force of all. His book, *Principia*, published in 1657, established that there was a natural attraction of bodies of matter to the centre of the earth; and this demonstration fathered a new philosophy.

Newton wanted an instrument for his research, so he constructed the first reflecting telescope. Galileo had already perfected an ordinary telescope, but had been anticipated in this invention by Leonard Digges, of University College, Oxford, who had adopted Roger Bacon's original suggestions. Halley and Herschel used the instrument for original observations in astronomy. Meanwhile philosophers like Hobbes and Locke distilled ideas that, absorbed in other countries, produced revolution after revolution for freedom, from America to France, to Italy, to Germany, to Russia (and, we hope, to Germany and Italy again, before long). Then the liberating influence of Newton in physical science began to have its effect. Joseph Priestley discovered oxygen. Humphry Davy unmasked a host of chemicals, from potassium to magnesium. Still more important, he invented the miners' safety-lamp, and gave young Faraday a job.

This Faraday made over sixteen thousand experiments in his life, invented the dynamo, laid the basis of the electrical age, discovered ether as an anaesthetic,

and looked for no more than the pay of a day-labourer for his work. Yet he was not an isolated phenomenon. It is quite impossible to give a complete account of British scientific discovery during recent times in such a restricted space as this. Darwin might be mentioned, Clerk Maxwell, J. J. Thomson, Dalton, Cavendish, Rutherford, and the list would be no more than a fringe. Special selection is the only way again.

2

Until William Harvey began his researches it was believed that the human heart was a fiery furnace and the veins of the body were filled with a mysterious gas. Harvey made it plain that the heart was a pump to force the blood in circulation through the body. He founded modern medicine.

Then Edward Jenner devised the method of vaccination to prevent smallpox, the first of the great discoveries in preventive medicine. He proposed to inject a lymph into the blood-stream, and maintained that the introduced serum would immunize the patient. He was not allowed to experiment in the hospitals, so injected the first serum into his little son, who survived unscathed. Eventually a vaccinated patient did not catch smallpox when exposed to it, and the medical profession, from reviling Jenner, began to listen to him. Thousands of people had died from smallpox every year; it was rare to meet an adult without the ugly smallpox scars. But within a few years every civilized

nation had adopted Jenner's method, and the disease was conquered.

If Jenner was the father of preventive medicine, his contemporary John Hunter was the first modern surgeon. Hunter devised methods that are still used in the operating theatres of the world. But that early surgery was a painful procedure, for patient and surgeon alike. "Here is a grim reminder of what operations meant before anaesthetics were known," says an initiate. "We have a large bell at this hospital which was rung before every operation, and continued ringing till four porters arrived to hold the patient down on the operating table. Rumour tells that every patient who could do so at once left the hospital on hearing it."

James Young Simpson was the son of a poor Scottish baker. He made it his mission to find a means of dimming the senses of patients under the surgeon's knife, so that they would be spared agony, and the surgeon would be able to perform his delicate work unimpeded. He discovered chloroform. Davy's laughing-gas and Faraday's ether were later used to supplement Simpson's method. Now surgery was greatly advanced, and only one drawback remained to be remedied.

When Lister was appointed to the Glasgow Infirmary in 1861 and first tried to inculcate methods of cleanliness, so that fewer patients would die from disease introduced into their wounds by dirty hands, swabs and instruments, he was reproved by the directors for using too much soap. But the young doctor, especially inspired by Louis Pasteur's revelations of germ-action,

persisted in research until he had discovered his famous antiseptic method, based on the germicidal properties of carbolic. An American Ambassador once addressed Lister in these words: "My Lord, it is not a profession, it is not a nation, it is humanity itself which with uncovered head salutes you."

3

This tale of British medical triumphs could be continued along conventional lines. But a brief survey of one branch only, tropical medicine, should provide a conclusive demonstration of the debt which all humanity owes to the medical scientists of this country. The lives of a few men have saved so many. The lesser-known should be mentioned first. There was David Bruce.

He was born in Australia in 1855, but educated in Scotland. He worked as a clerk, then studied medicine, entered the Army Medical Service, and was posted to Malta. He found that the whole population was stricken by an obscure but fatal malady. Within two years Bruce had found the cause, a certain micrococcus in the spleen, traceable to goat's milk. Malta fever was mastered. Then Bruce went to Africa, where the authorities were greatly troubled with nagana, a disease of cattle that was seriously retarding the economic development of the entire continent. Bruce traced this to the tsetse-fly, and went on to investigate the cause of sleeping-sickness, even a worse scourge. The tsetse-

fly was again found to carry the germ. As a result of these discoveries—which were assisted by the work of many other investigators—Africa was freed from a fatal slavery to nature.

The story runs from Africa to the New World. Only seventy years ago it was customary for three-quarters of every West Indian military garrison to go down regularly with yellow fever, a malady that afflicted all the tropical parts of the Western hemisphere. The fever raged not only in the Indies but also in Mexico, part of Central America and Brazil. Over 94 per cent of the inhabitants of Rio died during one epidemic at the end of last century. But there have been no serious epidemics since 1910, and some of the worst areas, Ecuador, Mexico and Brazil have been almost entirely freed from the disease.

This was partly the work of Walter Reed, an American of British descent. But Reed's principal assistant, who carried out most of his experiments, was James Carroll, an Englishman. He contracted the fever himself, deliberately allowing a mosquito to bite him. His nurse recorded at the time: "Says he got his illness through the bite of a mosquito—delirious." But Carroll had found the fatal cause; his courage repaid him—and humanity. It was found that yellow fever, like most other tropical diseases, was produced by germs carried in mosquitoes. Yet Carroll himself was not to escape the ultimate consequences of his devotion. He died at an early age from a weakened heart, induced by the original malady, just after he had published his last paper with the title: "Without Mosquitoes There Can

Be No Yellow Fever." His selfless life and death were not, however, unique. Many of his co-workers in this field of medicine were similarly martyred.

The tale of John Everett Dutton is typical. This young doctor had a brilliant career as a medical student, and won several gold medals. He was granted a fellowship at the Liverpool School of Tropical Medicine, and spent most of his short life in Africa. He attended a patient in Gambia, and recognized in his blood an organism which, thanks to the researches of Bruce and others, was identified as the cause of sleeping-sickness. Next, Dutton turned his attention to tick-borne relapsing fever in the Belgian Congo. He was investigating the transmission of the ticks by monkey-carrier —the path of the eventual cure—when he caught the fever himself, and died in 1905 at the young age of 31 years.

Scientists such as this have done more for the world than a thousand tyrants. When militarism has been mastered by a disillusioned humanity, and the martial glories of the British Army appear shabby across the callous years, it is possible that the Royal Army Medical Corps of this fighting-force will still be remembered with pride and gratitude. The Corps has provided facilities for so many researchers in tropical medicine. Officers of the service were amused when young William Leishman took a microscope with him to India. While fighting in the Khyber Pass, and attending to the wounded among gaunt rocks under a burning sun, the medical officer never ceased to take specimens and work upon his theories. Thus he

developed his method of staining blood for malaria and other parasites—known ever since as Leishman's stain—and he discovered the cause of Dum-Dum fever.

But Leishman's greatest work was vaccination for typhoid, which has saved innumerable lives in modern warfare. An authority writes of the 1914–18 struggle: "At the beginning of this war only about 25 per cent of the troops were inoculated prior to embarkation. Enteric fever broke out and spread. By July 1915, largely owing to Leishman's efforts and advocacy, 95 per cent of the men had received inoculation, and by the end of the year a further 3 per cent. The prevalence and incidence of typhoid fever fell rapidly, and by the end of 1915 was not a serious cause of loss of military strength."

The names of Patrick Manson and Ronald Ross, greatest on the heroic role of tropical medicine, have been left to the last, because they have both enjoyed wide advertisement, and their stories do not require a detailed re-telling. Manson was another Scot, who started his investigations as a small boy when he shot a cat on his father's farm to examine its interior for tapeworms. He became a doctor, and went to the Far East, where he worked for several years. He found that the worst tropical disease was malaria: it had a higher sickness and death-rate than all other diseases combined.

During investigations into elephantiasis among the Chinese, Manson concluded that the germs were carried by insects. This was his great discovery: he related it to malaria, and passed on his findings to Ronald Ross, who definitely assigned the cause of

malaria to a mosquito-borne germ. The discovery also helped investigators into other diseases, some that have been mentioned already. Without a doubt, Manson was a "great original." His brilliant theory of the insect-carrier can only be compared with that of Harvey in the circulation of the blood, and Pasteur in bacteriology. Manson was the father of his particular science, and he founded the London School of Tropical Medicine, a model for many similar institutions in all parts of the world.

As for Ronald Ross, the world owes to his labours its recent mastery over malaria, for he took Manson's suggestions and put them into practice. His was the arduous work of the scientist who has to expand a theory into a practicable method. The date of his great triumph, August 20, 1897, has ever since been commemorated, across the entire civilized world, as "Mosquito Day."

4

Florence Nightingale, faced with appalling conditions among the soldiery of the Crimean War, founded the nursing profession as we know it today. Every modern nurse owes her methods to the reforms of this woman. Then our sanitary systems, and sewage engineering, were first developed in England. The English traveller a century ago was notorious for his interest in personal cleanliness: since then he has left a trail of bathrooms behind him across the globe.

But health is not achieved by medicine and hygiene

alone. An Indian has said that if he could persuade his fellow-countrymen to adopt British eating-habits, they would soon be a martial match for their overlords. The "rost-bif" of England has been a subject for international amusement, but it has also built a strong nation. The achievements of British farmers must be ranked as a contribution to human progress, even though many people believe that the British are no longer capable of producing their own food.

The fact is that agriculture in this country has declined during the last century because the world has asked for British manufactured goods, and has only been able to supply foodstuffs in exchange. But agriculture is still the greatest single industry in Britain, and the health of the entire world has been directly influenced by British research into animal husbandry and plant cultivation. Thus it must be mentioned that British breeds of cattle have been largely responsible for building up the chief food-herds of the Western hemisphere today. These range from the famous Shorthorn, to Scottish breeds such as the Aberdeen Angus. An American authority has written of the Shorthorn: "It is generally found in North America, in South America, more particularly in Argentina, in Europe, in Australia and to some extent in South Africa and Asia. In the United States the Shorthorn is the favourite breed."

The export of breeding cattle from Britain began at an early period, and flourished because of the natural excellence of the stock. During that remarkable eighteenth century, when the industrial inventors were

so momentously at work, a movement was launched in several parts of the country to improve breeds. Robert Bakewell was the greatest among a number of famous farmers who experimented with animals. It is recorded that in his homely farmhouse Bakewell entertained "Russian princes, French and German Royal Dukes, British peers and sightseers of every degree." Thomas Coke was another breeder of international fame. At his annual sheep-shearing, it is said, "hundreds of persons assembled from all parts of Great Britain, the Continent and America." Thereafter special societies and farmers' organizations continued the work of these pioneers. About seven thousand pedigree cattle a year are still exported from Britain for breeding purposes.

This country has also given many famous breeds of sheep to the world, from the Leicester (developed by that same Robert Bakewell) to the Southdown. The British Dominions of Australia, New Zealand and South Africa today supply most of the wool used by the factories of all nations. Similarly British research has produced the best strains of wheat. While Professor Stapledon at Aberystwyth has bred new strains of grass to assist the cattle industry, the experimental farm of the Cambridge School of Agriculture has adopted similar methods to double mankind's yield of daily bread. A Major Hallett, of Brighton, began this work some ninety years ago when he demonstrated that a single seed of wheat could be made to produce no fewer than ninety-four separate stems.

Britain has always been regarded as the finest wheat-growing country in the world. Her average yield of

31½ bushels to the acre is still unequalled. Sir Rowland H. Biffen, at Cambridge, produced the famous Yeoman wheat, which can yield 96 bushels. He has recently bred a strain that is immune from the disease of rust. Such work as this cannot be measured in terms of national pride; it is the benefit of humanity. The Rothamsted Experimental Station has now been established over a century. During that time it has created the modern science of the soil. It must be emphasized that agricultural education began in Britain. The first chair of agriculture and rural economy was established at Edinburgh University in 1790, at Oxford in 1796.

There may not at first sight be a direct connection between race-horses and the health of the world, but the science of eugenics itself originally sprang from the sporting enthusiasm of the British. Cattle and sheep-breeders like Bakewell obtained much of their data from the experiments of other people with race-horses. Thoroughbreds in North and South America, the British Dominions, France and other countries, are descended from three Eastern horses introduced into Britain during the early years of the eighteenth century. The descendants of these original Arabs, thanks to careful breeding and the effect of the climate and soil on constitution, bone and general development, can hopelessly outmatch the best horse to be found in the East today.

Three of the finest breeds of draught horses are the Clydesdale, the Shire and the Suffolk Punch. The Shire is a direct descendant of the heavy chargers bred in medieval times to carry armoured knights. The

Percheron, of French origin, has been greatly improved by British breeders. As for harness breeds, the Hackney, the Yorkshire coach and the Hanoverian have been the chief British contributions, improved by periodical infusions of thoroughbred blood. The English hunter is probably one of the world's best saddle-horses.

5

This chapter cannot be closed without mention of a very characteristic British institution, one that may have a profound influence upon the social hygiene of the future. The Industrial Revolution created utility but also much squalor. British people had always preferred to live in their own houses and cottages, separated from each other by as much field and vegetation as possible. They had been proud of the saying that "an Englishman's home is his castle." But the Industrial Revolution forced men to live close to the factories in ugly towns. Houses were joined together, end on end, back on back, in dreary rows of unrelieved brickwork, often without gardens, completely divorced from the native soil. This unnatural custom was exported with the machines and factories to other countries. It was not a gift to humanity.

Towards the end of last century some Englishmen revolted against the new urban squalor. They declared that towns should be planned by experts, in such a way that the inhabitants might live under healthy conditions. Towns should not be allowed to develop hap-

hazardly, their only inspiration the greed of the master-builder. From this movement sprang the idea of the garden-city.

The original idea was put forward by Sir Ebenezer Howard, in a book published in 1898. As a result of his suggestions, the Garden Cities Association was formed, and Letchworth, the first garden-city, was built in 1903. Welwyn, the second, was built in 1920. The main features of Howard's original scheme have been summarized as follows: (1) The purchase of a tract of agricultural land within a ring fence; (2) the planning of a compact town upon it, surrounded by a wide rural belt; (3) the town to be limited both in extent and population, and never to encroach upon the rural belt; (4) the value of the land, as it increased, to be held in common by the inhabitants. These rules have been followed by the planners of Letchworth and Welwyn, two fine towns that have influenced civic authorities across the world.

The application of the garden-city idea to industrial estates was another unique contribution. The first manufacturers did not mind how their workmen lived. Then some developed a conscience, which accorded usefully with a new theory, that the workman's capacity for work was improved if he led a healthy and contented life. George Cadbury, a Quaker, put this theory into practice, as he had invented the modern process of cocoa and chocolate manufacture.

Cadbury chose some thousand acres of beautiful country at Bournville, raised an endowment fund of £200,000 and established a model garden-city round

his factory. Much space was devoted to lawns and gardens. Some two thousand houses were built, and made available to the employees at low rents. But Cadbury also built a school, a church, a library, a hospital, a convalescent home, a gymnasium and a swimming-pool, while he organized training-centres for arts and crafts, social and sports clubs. He inaugurated a pension fund which has since built up a capital of £3,000,000. It was justly observed many years ago that "Mr. George Cadbury and his firm take far more thoughtful care of their workpeople than most fathers do of their children."

Other manufacturers followed Cadbury's example. Port Sunlight, home of the soap, is another Bournville; it has become the regular practice to surround new factories with gardens and make provision for the leisure hours of employees. The idea has spread to other countries, and similar garden-cities will be found in the Americas, in Europe and in China and Japan. The urban centres of the British Dominions are all planned as garden-cities. The inhabitants find a new health and daily contentment. They are no longer slaves to their own industry.

Thus it will be seen that Britain has not been content merely to ensure political freedom on a basis of machine- and sea-power. She has also devoted her best brains to improving the health and the condition of mankind, that all may enjoy the widest benefit.

Chapter VIII

Empire

I

Forty years ago a young man fought bitterly against the British in the South African War. After the defeat of his Boer compatriots, he entered exile rather than submit to alien rule. He bemoaned the fate of his country and continued to curse the conqueror for many years. Last year he came to London as representative of South Africa to offer Britain generous assistance against Germany in the present war. He was now Colonel Deneys Reitz, Minister under the British Crown, and had earned his military rank as an officer of the Royal Scots Fusiliers during the German war of 1914–18. The author of this book had the good fortune to meet him, and asked point-blank what had happened in those distant years of exile so completely to reconcile the young Boer rebel to his former enemies.

"I found that you had treated my people with such generosity," he replied, "that there was no point in my staying away any longer. You see, the British granted the Dutch in South Africa complete self-government. They restored all the Dutch farms that had been

destroyed in the war. The Dutch and English languages were placed on an equal footing. Experts were sent out to build a new order for South Africa. Indeed, the obvious desire of the British to make friends, and to heal old wounds, was quite irresistible.

"When Germany first challenged the democratic countries in 1914, we South African Dutch could have taken the opportunity to rise against our conquerors. Some of us, the foolish ones, did make such an attempt. But they were an unimportant minority. All the wise heads instantly offered their lives and treasure to the British. Botha and Smuts, the Boer leaders who had fought the British so bitterly a few years before, now drove the Germans out of Africa, and Smuts became a prominent member of the Empire War Cabinet. We fought at your side in the African campaigns and in France because we wanted you to win. Your victory, we knew, would be ours.

"And afterwards," said Colonel Reitz, "we continued to co-operate with you because you were an honest, tolerant partner, and there were few other Great Powers of whom that could be said. That is why we are in this war today with both our feet."

Perhaps those words of the one-time rebel are chiefly memorable because they provide a perfect demonstration of the doctrine that the victor may make his enemy a friend by refusing to take advantage of him after he has been defeated (a doctrine that has suffered in recent years). But they are also significant because they demonstrate the British method in colonial government, another gift to humanity. What is that method?

A certain woman was blessed with a family of strong sons, who grew up to seek their fortunes overseas. Eventually they all made homes for themselves in different parts of the world. But they never forgot their mother, because she made no attempt to restrain their ambition (indeed, she encouraged it) and because she bought their produce. They were living apart for the sake of convenience, as is the custom of grown-up families, but remained one family at heart. When the mother was threatened by an enemy, they came to her assistance at once. She did not need to ask them, any more than she required to govern them, because she had earned their love and respect.

Let us look at the matter in another way. First, the British fought their local tyrants to be free. Then they devised such systems of government and police as would enable freedom to be preserved. But meanwhile some of them had travelled to distant parts of the earth, where they had found empty lands awaiting cultivation and development. They settled in those places; and at first, since they were few and completely dependent on the Mother Country for supplies and protection, they were known as colonies. But as they grew and were able to take care of themselves, precisely the same political principle was applied to them as had been developed at home. They were given complete freedom and an equal voice in the affairs of the British Commonwealth as a whole. Not even an unarmed police force was needed to control their loyalty.

In one early case the British did try to coerce their overseas colonists by forceful methods. The American

War of Independence and the loss of those North American colonies were the only results.

Empires in the past were won and held by the sword, and invariably perished by the same means. But the British Commonwealth endures just because it was created by freemen who remain united by consent alone. When the King of England addresses his various peoples he does not refer to them as subjects, but rather as fellow members of a family.

2

Nevertheless, certain nations have recently attempted to justify their own aggressions by reference to the past history of the British Empire. They have said, in effect, that Britain "acquired" this Empire by the exercise of superior force, so why should they be criticized for adopting the same methods. This may be answered in two ways. It may be pointed out again—as it was in the section on pirates and slave-dealers—that if the British were bandits several hundred years ago, so were all men at that time; and the British have since made great sacrifices to put an end to banditry. It may be argued that force did actually play a very small part in the building of the real British Empire.

Originally the British acquired several colonies by force. Both Canada and India were conquered with the musket, although a large part of Canada was empty territory, and the first portion of India to be owned by the British was freely purchased by a trading company.

Other units to be conquered forcibly were the Rock of Gibraltar, at one end of the inland waterway to the East, and the Rock of Aden at the other end. Part of South Africa was taken with the sword—and then given back to the inhabitants—although Natal was British by virtue of peaceful settlement; and a large sum of money was paid to the Dutch after the original conquest by the British of Cape Colony.

But it should be noted that none of these territories were acquired in the mood of the tyrant who says: "I like the look of that place. I shall conquer and take it for my own." They were rather the prizes of large-scale wars that had been waged for other purposes. Thus Canada and India came to Britain from her general campaigns in Europe during the eighteenth century. Gibraltar was a similar fruit of a war waged for other purposes—the maintenance in Europe of a balance of power that would enable all nations to live in peace.

The native ruler of Aden originally offered to sell that colony to Britain, but attacked the British agent treacherously during the negotiations, and a punitive expedition was sent to take the territory by force.

It is freely admitted that part of the old British Empire, as opposed to the modern Commonwealth, was originally acquired by military force at a time when that was the only practicable instrument of settling disputes. But two other important facts will qualify even this statement. First, the proportion of the British Empire that was the immediate and direct result of premeditated conquest is small. Second, the British soon discovered that sword-won territory was not so

satisfactory as territories gained through peaceful methods.

What parts of the Empire were gained without bloodshed?

First, there are those territories which lay open to anyone who cared to pitch a tent in them, but for which no one cared save the British, who had them for the asking. These range from the oldest colony, Newfoundland, to the vast continent of Australia. A great part of Canada must be included in this class. Many other colonies, such as Barbados and the Bermudas, were empty islands when the British first landed on their shores.

Second, there are the lands which became British by the free decision of their inhabitants. These so feared their neighbours, or the possible activities of other Great Powers, that they deliberately invited the British to extend a protecting arm to their shores—because they knew that under British rule they were safe. These include such territories as Malta, Basutoland, the Fiji Islands and New Zealand. Freetown, in Sierra Leone, was sold to some British philanthropists, and used as a home for African slaves that had been given their freedom. Malta was occupied on a request from the Maltese, who had just risen against oppressors.

The British first ruled Cyprus under a licence granted by Turkey; Wei-hai-wei and the Kowloon peninsula against the island of Hong Kong in China were acquired by lease. There are a great many small "Protectorates." Sometimes the British afford these helpless countries protection against their foes, coupled with control of

foreign relations; sometimes they administer them completely in the name of the native ruler. But in each case it is the British policy to educate the native inhabitants until they can safely take care of themselves, when the Protectorate is removed.

Nor is this a hypocritical policy. The British have tried to honour their promises. Britain transferred the Ionian Islands to Greece in 1864, entirely of her own free will, despite Adam Smith's dictum that "no nation ever voluntarily gave up the dominion of any province." In her history she has conquered places like Dunkirk and Minorca and has handed them back without any compulsion. Many of the strategic points that she has retained, like Malta, St. Helena, Cape Town, Aden, Singapore and Hong Kong, not to mention Gibraltar, were sterile promontories or poverty-stricken islands when she first occupied them. Only a few years ago Britain accorded independence to Egypt and Iraq. Every year India is given more rights of self-government, and southern Ireland has been allowed virtually to sever its connection with the British Empire.

Deneys Reitz is not an isolated phenomenon. There is no doubt that Britain has a peculiar flair for winning over to warm friendship those who have fought against her. A certain gifted Irishman named Arthur Lynch was so rebellious against British power in his youth that he joined Britain's enemies in the Boer War. He was tried for treason, sentenced to death, but pardoned. He became a popular member of the House of Commons, and later served as a British colonel in the First German War.

The only explanation can be that Britain learnt her

colonizing lesson early in her career. She learnt that empires won by the sword invariably perish by the same means. When she tried to dominate the young American colonies by force she soon lost them by force. It has been her practice, therefore, as soon as a colony has become capable of governing itself, to accord that colony the right of self-government. Thereafter the colony may decide for itself whether it desires to remain in the Commonwealth.

That term Commonwealth is being used because there is no longer a British Empire in the historic meaning of "empire." Here is a world-wide union of independent and partly independent States, who remain banded together not only because they recognize that their political and economic safety depend upon that association, but also because they trust one another.

The British Foreign Secretary recently claimed that wherever the British had been in the world "they had left a trail of freedom and self-government." This record was rather different from "the suppression of liberty and of independence of peoples whose political development had already reached an advanced point." In other words, the British have not yet sought to conquer an established, civilized State by force of arms and incorporate it in their own *reich*.

3

The British method of linking great nations together, be they separated by vast oceans and scattered across

every part of the globe, may eventually spread. It is already the basis of the new notion of federal union, proposed by many for the rebuilding of Europe after the present war. It has been followed closely by the nations of Latin America. There is a striking parallel between the South American States and those of the Commonwealth, both linked together by ties of common blood, custom, language and interest, but both separately independent in their parts. South Americans should not find it difficult to understand the highly original constitution of the British Commonwealth.

The author of this book is already uncomfortably aware of his shortcomings as an expositor. He tries not to, but he *must* praise his own country with every new account of its achievements that he adduces, and this is a self-sickening game. He now proposes to hand over the unpleasant task to the enemy. The Germans of today have declared open war on all the principles for which Britons have long laboured. Yet the Germans themselves, like unruly children who continue to misbehave even though they know that they are wrong, have recently provided some flattering acknowledgements of the British contribution. Here are words of Adolf Hitler, pronounced before the Reichstag on April 28, 1939:

"The Anglo-Saxon people has without doubt performed for the world an immeasurable work of colonizing. To this work I give genuine admiration. Thoughts of destroying this work seemed to me and seem to me from the loftier standpoint of humanity only the offspring of human vandalism."

In the same year a well-known German journalist, Count Puckler, of the *Deutsche Allgemeine Zeitung*, wrote a book entitled *Wie Stark is England* ("How Strong is England?"). He paid lavish tribute to the unique constitution of the Commonwealth, using these words: "The constitutional form of the British Empire has changed since and as a result of the World War. The former British colonial empire has developed into a league of freely affiliated independent States, a league *sui generis*, a league unique in world history. *It represents an original contribution by* the British people to the political history of the world. The British Empire can best be described as a confederacy of States without any central executive power."

Count Puckler went on to discuss whether the Commonwealth was oppressively governed. These were his conclusions: "The burden of Empire defence which rests on Great Britain in times of peace is small in relation to the extent of the Empire and its riches. The Dominions are responsible for their own defence. The remainder of the Empire is defended by Great Britain with her fleet, approximately 30 squadrons of aeroplanes on overseas service, and about 92,000 men. That is the total strength of British troop units overseas.

"The fact that an Empire with a coloured population of over 400 million souls can be held with such weak military forces is a testimony to the brilliant British administrative talent. Throughout the whole of the British Empire, including all the Dominions, Great Britain herself and all her military garrisons overseas,

there is a total standing army of only 441,000 men as against a total population of almost 500 million souls.

• "Such a thing is possible because the British Empire is not like the old Roman Empire, and has not to be constantly defended against the insurrections of oppressed peoples. The existence of the British Empire is not to be called into question from within."

After that testimony it is almost unnecessary to continue this chapter. But some final facts must be given to complete the curious tale and to explain some of its more unusual features. It must be explained that the great British Dominions today, Australia, Canada, New Zealand, South Africa, Eire, conduct their own foreign policy; they conclude treaties and trade agreements with foreign States; and they maintain their own diplomatic representatives in a large number of foreign capitals. They could secede from the Empire at any time—there is absolutely nothing to prevent them—and they are on a footing of complete constitutional equality with Britain. When the Second German War broke out they all, with the exception of Eire, offered immediate support to Britain, but in some cases did not actually declare war against Germany until after the British declaration.

A German who was less well-informed than some of his compatriots, Hermann Goering, boasted before September 1939 that "Never again will Dominion troops fight a war for England." But the response of the Dominions to this second call from the Mother Country in a short generation was even more whole-

hearted than on the first occasion, *despite that these same Dominions had secured virtual independence from the Mother Country during that interregnum.*

The Government of India enjoys fiscal independence and concludes separate trade agreements with foreign countries. Britain levies no tribute from India. On the contrary, large grants have just been made by Britain to India to assist in meeting defence expenditure. Mr. Gandhi, spiritual leader of those Indians who have laboured for complete independence, openly declared on the outbreak of war that he hoped Britain would win; and as a result the British in India are tacitly supported by their previous enemies, as well as by thousands of martial Indians, like the Sikhs, whose loyalty has never been questioned. It is realized well enough that the fate of India would have been very different if German instead of British troops had been garrisoned there to deal with such movements as civil disobedience.

Until recently the claims of Jews and Arabs in Palestine were bitterly contested, and both parties assailed Britain, whose difficult task was to act as mediator. The outbreak of war instantly brought protests of loyalty to Britain and offers of support from Jewish and Arab leaders alike. Similarly, the British Government had been faced with serious labour troubles in the West Indies. But when war was declared all classes made public expression of their loyalty and their desire to help England. Mr. Bustamente, the Labour leader of the erstwhile "rebels," stated at once that he placed "the services of himself

and the trade unions unreservedly at the disposal of the government."

All the British African colonies deliberately took advantage of the occasion to re-state their Imperial loyalty. In the words of one African spokesman: "The question at stake is whether native races in colonial territories shall continue to enjoy full civil rights, with promise of eventual independence. Britain has always given us our rights, and has made us that promise." Indeed, it may well be asked what has been responsible for this unanimous movement among all the peoples of the Empire; what is this unifying force that has compelled agitators to abandon their agitation, radicals to forget their roots and subjects to demand an even closer bondage at the first hint of external danger?

The answer is a simple one. All sections of opinion in the British Commonwealth or Empire are united in the belief that the forces of evil must at all costs be restrained from threatening the very basis upon which the British ideal of government is built. That basis is fair dealing and respect for liberties.

4

In territories inhabited by primitive or backward peoples (particularly in Africa) British administration by a system known as "Indirect Rule" is training these people in the art of managing their own local affairs so that in due course they may stand on their own

feet. Already this system has produced the result that nine-tenths of the population of the Dominions and Colonies today are self-governing, or have the machinery of self-government granted to them by Parliament, ready for use when the native races can compose their internal differences. The method of "Indirect Rule" is a distinctive contribution to political science.

Perhaps it was first formulated by that Earl Grey who controlled the Colonial Office from 1846 to 1852, and who said on one occasion about West Africa: "The real interest of this country is gradually to train the inhabitants . . . in the arts of civilization and government, until they shall grow into a nation capable of protecting themselves and of managing their own affairs." Mr. Malcolm MacDonald, then Colonial Secretary, brought this up to date when he declared a few years ago: "The main purpose of the British Colonial Empire is the gradual spread of freedom among all His Majesty's subjects, in whatever part of the Empire they live." He added that it was the policy of the British Government to enfranchise, or give the vote to all literate Colonial citizens "as soon as possible."

Here then is another explanation of the miracle that has so surprised German observers like Count Puckler, whereby a world-wide population of several hundred millions can be "kept in order" by an insignificant number of Englishmen. Natives are deliberately trained to govern themselves, to protect themselves, to provide their own educational, medical, postal, police services.

There are always many coloured students at the British universities and centres of technical training. They are learning to be independent—at Britain's expense.

It shall not be said that all Britons approve of this policy. The suggestion has been made before that the British is a dual character. There is always strong opposition to reform; at some moments, to some people, it seems madness to arm a potential enemy and spend hard-earned money on the welfare of very distant relatives. The British realize these things and often have practical demonstrations of them. They have taught a certain type of Indian how to grumble; they lent money to Germany after the first German War. Yet, at another moment, the British forget all cynicism and act as quixotically again. It is not for nothing that Cervantes has always been a favourite author among them.

Britain levies no tribute from her Colonial Empire, which might almost be described as an expensive luxury. The outbreak of the Second German War presented grave financial problems to Britain, who might have been expected to demand large contributions from her colonies at last On the contrary, a *Conservative* British Government at once launched a plan for social and economic development among colonial peoples which would cost the Treasury no less than £50,000,000 spread over ten years. The country was groaning under the heaviest taxation in its history, and the prospect of having to bleed itself dry for war purposes. The announcement of the colonial plan aroused unprecedented enthusiasm in the House of Commons; the

only criticism to be heard in the country was that it did not go far enough.

In due course there will not be a vestige left of the old British Empire. The first real League of Nations will have taken that Empire's place. (Here it may be noted that the League of Nations idea was itself first mooted by an Englishman, Norman Angell.) Therefore, while it is amusing, and even significant sometimes to record that the British were the original progenitors of the sandwich, say, or the shirt (they were), it is a matter of real pride to predict that the world of the future will possibly be built on a British idea.

The only point that has been overlooked is the British genius for the strategic defensive: this is the only factor that might, conceivably, retard progress towards the high end envisaged by the idealists. For an instance, Britain would return Gibraltar to Spain tomorrow *if* she could be certain that other countries might not force Spain to use that promontory as a weapon against the British ideal itself. What has been built, and what is building in the British Commonwealth is too precious to be jeopardized. It is universally acknowledged that but for the British Navy and Air Force the Second German War would have been a brief campaign and immediate triumph for the enemy, who would have swiftly spread across the face of civilization like a canker, to destroy all that human liberty for which the British and French had unceasingly worked. Therefore Britain, who knows how to place her slender forces and dispositions, dare not relinquish strategic points like Gibraltar while the

tigers are loose. It is possible, however, that the Spanish themselves would refuse to allow Britain to relinquish Gibraltar at such a moment even if she wanted to.

5

Here is a summary of Britain's colonial method. First, she refrains as much as possible from absorbing or retaining territories or peoples that do not want to be absorbed or retained. Second, she does not impose heavy burdens of taxation upon her overseas peoples, nor endeavour to impose her will upon them in any way, although she continually proffers help and advice. Third, she educates overseas peoples with the express purposes of according them complete independence as soon as possible. Fourth, in the majority of cases she finds that her former colonies do not wish to sever their connection with her, and she allows them to take a large part in her government as well as theirs. Fifth, she retains control of certain strategic defence points, so that, with her Navy, she can always secure the safety of her children.

The same principle that enabled Robert Peel to master an age-old state of criminal anarchy within Britain has inspired the modern builders of the Commonwealth. As it has been found in our time that whole nations must often choose, for their life, between guns and butter, it might be described as the principle of government without guns.

Chapter IX

Exports

I

Government without guns has been the ideal, but guns are still needed in a jealous world, lest all ideals be fatally crushed. And when guns have been needed there have always been British manufacturers to produce (eventually) the best.

That boast is made quickly, from very consciousness of the reader's instant reaction, not only to the vain pride of it, but also to the basis of its claim. "What about Pittsburg, and Sweden, and Krupps?" he will inquire dourly.

The question is allowed. All the great nations have been steel-makers and originators of steel-making methods. But—it is necessary to apologize again for irrefutable facts—Britain has invariably come first. It has been described how the Industrial Revolution of the eighteenth century created a demand for metals and metals to make and drive the new machines. Iron-smelting by coal was thereupon discovered in Britain, the first metal bridge was built, and Huntsman made cast-steel, leading to Bessemer and his famous process.

That might have been enough. But it was not. Subsequent inventors completely transformed those first methods, continuing their researches and successes until the present day, so that Britain could maintain her early advantage, and be still the largest and most trusted of exporting Powers. Thus the Bessemer process, although so efficient, was handicapped by the necessity of using only the best Swedish ores. Phosphorus in cheaper iron made it impossible to use the process. A lecturer at a technical class in London mentioned this, and said a fortune awaited the man who found a way to eliminate phosphorus. Such a man was seated in the audience, a young magistrate's clerk named Sidney Gilchrist Thomas. He devoted all his little spare time to clumsy experiment (for he could not afford proper food and lodging, let alone expensive apparatus), and eventually he devised the remarkable lining used in the Bessemer process and the Siemens open-hearth process to-day. But he had not worked to make a fortune for himself; he died at the age of 34 soon after the launching of his valuable invention.

The phosphorus-eliminator was launched in 1879, when the world's steel output was only 4,000,000 tons. Fifty years later the Thomas process was responsible for an output of 94,000,000 tons, out of a world's total of 104,000,000.

Britons have therefore taught the world how to make cheap steel. But they have also invented the most important methods of manufacturing hard and special steels, a distinction often claimed by Germany. The

manganese process was discovered by Robert Hadfield. He experimented as a young man of 24 with the hard black mineral known as manganese. He proceeded tirelessly from failure to failure, and one day arrived at astounding success. The alloy produced was so hard that an ordinary steel file could not mark it. Used for railway-lines, it showed no signs of wear after neighbours of ordinary steel had been completely rubbed away. Moreover, it was strangely non-magnetic; a poker of manganese steel, held in the fire, did not transmit heat to the handle. Its strength and toughness seemed to increase with hard use, only deteriorate if used lightly. It was manganese steel, mentioned before, that gave British troops the first shrapnel-proof helmets; and all military powers have since used the same material.

This was not enough. Steel might be perfect and hard to the point of immortality, but it was still vulnerable to rust. An Englishman, Harry Brearley, applied chromium to an alloy and produced the first stainless steel. This was in 1913. Brearley worked for Thomas Firth and John Brown, Ltd., of Sheffield, and his name with theirs will not be forgotten, as it is familiar to users of stainless steel all over the world. Look on the back of your knife next time you sit down to a meal. Brearley certainly did a service to housewives in all lands. But his alloy has been even more useful in great engineering works exposed to atmospheric corrosion, such as bridges, dams and many industrial structures.

What is the latest and most modern development in metal? Shop-fronts and motor-cars, domestic appliances, chemical, dairy and food-producing plants owe

their chromium glitter to the work of Dr. Hatfield, yet another member of the firm of Thomas Firth. He added nickel to Brearley's alloy, so that it could be moulded into various shapes without losing its rustless quality.

2

The work of these inventors has been very important, for it has enabled Britain not only to instruct the steel-users of the world, but also to produce steel goods for export. The first safety-razor was made by an Englishman because the material was at hand; without Bessemer he would have been helpless. It has been admitted that the motor-car was not a British invention, but the presence of suitable material in this country, and of trained mechanics, enabled manufacturers to develop the invention as if it were their own. In one case, at least, a manufacturer set a standard that has never been equalled. This was F. H. Royce, son of a miller, born in a cottage, self-educated. He delivered newspapers at the age of ten for a few pence a week, and worked as a message boy. Then he determined to make himself an electrical engineer, and studied through weary nights. Eventually he became such an engineer, and obtained a good position. He invented the electric crane.

The Rolls-Royce car was a greater achievement. Royce told his workmen that every part must be made by hand, and as much care lavished on the most insignificant part as on the whole. He became a terror to

his workmen, for their best efforts rarely succeeded in satisfying him. The result was expensive, but undoubtedly the most reliable motor-car in the world. It did not fail in the Sahara Desert or in mountain snows. An Australian bushman once told the author: "American cars are popular over here, yes, but the Rolls-Royce is the only make I've ever known that will stand up to regular cross-country work in the interior without constant breakdowns." The first armoured cars were Rolls-Royce.

There have been many British motor-cars since, and those of Morris have possibly spread the most, with the exception of one type, the "baby," almost an original invention in itself. Herbert Austin's seven horse-power car has stolen laurels from America in recent years. It has penetrated to the most inaccessible corners of the earth; and few industrial nations have not manufactured it, either on behalf of the Austin Company or under licence. It has repeatedly belied its size by snatching victory in road and track races from the bonnets of heavier and more specialized rivals. More than a thousand of such victories stand to the "Baby Austin's" credit.

The British Isles are small, although the Empire is large, and small products have at first been the greatest British successes. For many years the British aircraft that proved most popular in other countries was the De Havilland "Moth," a light but amazingly tough machine, useful equally for the isolated rancher and the intrepid record-breaker. As British steam-engines were the first product of the Industrial Revolution to

be found in the remotest countries, under the most curious conditions, and the Ford car of America was the second, so the "Moth" is today almost absurdly ubiquitous. The author has seen one nestling on a river-steamer at Colon, another in impudent flight over New Zealand's highest mountain.

Then Thomas Sopwith gave the world the first amphibian aeroplane that would alight on land or water; and the first flying-boat was British. Handley-Page designed a larger aeroplane in 1918 than had ever been known before; he soon outdistanced that achievement by inventing the device of the slotted wing, which at once reduced the accident-rate in flying, and made aircraft safer than any other form of mechanical transport. All flying nations have adopted this invention. Aero-engines such as the latest products of Rolls-Royce, Napier Lion and Bristol have enabled British aircraft to break records (and have been employed by other countries, such as Italy, for their own record-breaking planes). The achievements of fighter aircraft such as the Hurricane, the Spitfire and the Defiant, and of bombers such as the Blenheim, the Wellesley and the Wellington in the present war have proved finally that the nation which inaugurated the machine-age has not yet lost its technical skill.

3

Thus Britain continues to supply the world with quality goods, often articles and machines that are

completely original. Her electrical industry, based upon the work of that Faraday who invented the dynamo, and that Joseph Swan who discovered how to produce electric-light (as another Briton, Murdock, had invented gas-light) is today the most flourishing and modern of her export groups. Those original textile inventions, by which the world learnt to produce cotton and woollen materials in over-abundant mass, were not a chance development. There is something in the genius of the race that continually encourages such discoveries. Cotton and wool were becoming drab and uninteresting; fashion, and particularly the fashion of the new monied class of industrial worker, demanded a textile as cheap and durable but smarter. A Briton, or rather a series of Britons, thereupon invented artificial silk.

It was not a new idea. Nearly three hundred years before a certain Dr. Robert Hooke had written: "A pretty kind of artificial stuff I have seen, looking almost like parchment horn or isinglass . . . and I have often thought, that probably there might be a way found out to make an artificial glutinous composition, much resembling, if not full as good, nay better, than that excrement out of which the silkworm wire-draws his clew." A Manchester silk manufacturer announced that he had discovered a method for the production of such an artificial silk in 1840, but was unable to substantiate his claims. A Swiss experimented with collodion, and Nobel discovered how to turn this substance into the most deadly explosive.

Then the same Joseph Swan who had invented

electric-light was seeking a material to make filaments for his bulbs. He learnt about the sticky collodion, and used it successfully. He forced it through tiny holes; and in 1885 the product was shown at the Inventions Exhibition as the first strand of artificial silk.

Swan put this matter aside and continued with his greater device. But two men, C. H. Stearn and C. F. Topham, had been very impressed by the sticky product, and resolved to discover a practicable method of manufacturing it. They succeeded, although a still better method was devised by a Count Chardonnet in France. But some years later all this work was swept aside by the new discovery of two more Englishmen, C. F. Cross and E. J. Bevan, that cellulose—the substance forming the solid framework of plants—could be drawn easily into yarn when dissolved to the viscous state. The firm of Courtaulds experimented with, and adopted this method, although it was still impossible to produce commercial cloth until a way had been found of spinning the viscose filaments into thread. The original inventors, Stearn and Topham, set to work, and devised the key-tool of the industry, a mechanical spinner which twists the hanging filaments by centrifugal force.

The original Celanese factory was built during the First German War for making "dope" for aeroplane wings; it has since become one of the largest makers of artificial silk in a world that daily demands more and more of the material for a thousand purposes. The cellulose is obtained from spruce-wood or from waste-cotton, or even from potatoes. *Ersatz* did not begin in

Germany. The Germans are an exceedingly careful and industrious race when they are not bullying their neighbours and cheating their friends, but they are indebted for many of their own famous industries to British inventors.

It is generally assumed that the Germans discovered the process of extracting colours from coal-tar to produce the so-called aniline dye. This is not so. The inventor was an Englishman, Sir William Perkin, who found in 1856, at the age of eighteen, that coal-tar would yield such a substance. Similarly the Germans have claimed to be the originators of the modern steel and electrical industries, but, as has been shown, there is no shadow of doubt as to where the credit should be assigned.

A long list could be given of British products that have become household words in all parts of the world. It has been said that British sauce goes everywhere, and the saying may or may not have a tart significance. A friend of the author's has certainly related his amazement on finding, in a waiting-room of the Trans-Siberian Railway, far into Asia, a bottle of the ubiquitous "Lea and Perrins.'" This British capacity for export is a curious phenomenon. A Power in the skies, surveying the earth, would see products from this miniature country, not only products but ideas, going out constantly to all parts. He might be entitled to think, indeed, that this was the heart of all. Henry Tate was a grocer's assistant. He started the manufacture of "loaf" sugar, and founded a great refinery which sends its products everywhere. And the same grocer's assistant

died to leave his profits for the erection of a picture gallery, whose name, the Tate, is world-famous, but whose name still puzzles nine out of ten Englishman, who wonder whence it was derived.

Then the descendant of a long line of scholars and divines, one Jeremiah Colman, buys a mill, and contrives a new kind of mustard, totally different from the previous dark and unappetizing kind. He establishes yet another export trade and international standard. John Chivers and William Hartley decide to make jams and the process is repeated. Trousers come from England, the cardigan, the jersey and many other articles of the modern negro's, German's and American's male clothing, so that the best-dressed man in every country must soon order all his apparel in England. There are a cut, a masculine line, a quality that other tailors and seamstresses can never quite attain.

4

The final export is less tangible but no less pervading. Trade cannot be profitably nor safely conducted without special kinds of financial methods and principles, the two being, in British experience, facets of the same. Goldsmiths originally sufficed to hold and lend money on behalf of traders and manufacturers, the currency was periodically debased for the profit of kings. But the men who invented the machines and processes of the Industrial Revolution had no mind to see their earnings lost in such haphazard methods: the

result of their complaint was the foundation of modern banking and insurance, and the stabilization of a currency that the whole world could trust.

The devices then improved, the central State bank, like the Bank of England (which is not owned by the British Government for all that—to ensure its greater safety), the system of commercial credit operating through the cheque and the bill of exchange, the "gilt-edged" security and all the rich panoply of modern insurance, are now universal. The very idea of trustworthy finance originated in Britain, so that the funds of the world have flowed to London for profit and safekeeping ever since. The investment trust was hatched by solid Scots in Dundee. All ship-owners who value their trade insure with Lloyd's. As this is written a British Government has assumed the stupendous financial liability of an insurance and system of indemnity against damage from air-raids.

Without British capital the New World could not originally have been colonized and developed. The British industrialist does not hoard his gold in stockings or joint-stock vaults: he sends it out to the ends of the earth, and it is a constant, invigorating force, like Harvey's blood-stream from the heart. With the gold, moreover, goes a code, the direct financial product of that wider freedom.

Chapter X

Shakespeare

I

There is but one major department of human endeavour left, the aesthetic, and because this survey has been made in England, it comes last. Even so, it may be related to the theme. What distinctive art has this nation given the world?

If the question were confined to pictorial, sculptural, architectural and musical art, it could be answered swiftly. Constable and Turner have attempted, not without influence upon the world, to make pictures from the illusive face of their country, while sturdy individualists from Hogarth to Low have cultivated an influential technique of socialism in black and white. The first British sculptor still lives, and is Epstein, who has certainly contrived an original method, but one that is British only in its ill-defined delivery. When the British build factories, they are sometimes inspired, and emulated. The only music from Britain that has definitely influenced mankind is folk-song. Elgar and Delius have recently been listened to outside England, but it is too soon for definite appraisal of their influence.

No such doubt exists about the composers of a thousand popular songs and Jack Hylton.

When art descends to craft, this country has been happiest. The whole Industrial Revolution, from James Watt to Harry Brearley, is a triumph of hand allied to brain rather than to sensibility. The outstanding special contributor was William Morris, who found the domestic crafts of England, in his own words, "sick unto death," and who stripped the worst wallpaper from the Victorian drawing-room. His method was to revive the purer designs of an earlier day. The patterns of his textiles and decorations, his needle-work and jewellery had a considerable influence in Germany, Austria and America. His printing and book illustration set a completely new standard for the books of all nations.

But this was a peculiarly British department, in which the only rival ever had been Germany. From Caxton, through the obscure printers of the Shakespearean Folios, to the early newspaper-makers and the later publishers of London and Edinburgh, the craft had flourished, and flourishes. Even at the present crowded day a man who wishes to make books either studies what England is doing, or comes to England. The whole assorted panoply of the modern Press starts here. The first newspaper advertisements were taken in England; Watt's steam-engine, applied to printing, produced *The Times*, father and model of all self-respecting news-conveyers. An inventor named Foster devised rollers for inking the type; one named Nicholson discovered how to do the actual printing with cylinders. Konig the

German came afterwards. Applegarth started the real steam-printing. A Scot invented the stereotype.

But these are bare bones. It is sufficient to insist that the modern newspaper is a British invention. The tradition of reliability and sobriety also began and has been cultivated in the British Press, while many of the worst features of modern journalism have come from elsewhere. Similarly the craft of broadcasting in its most sober and reliable aspect is a British development. Tribute has already been paid to the great work of synthesis performed by Marconi of the Irish mother and British workshop; but David Hughes invented the first microphone, and received the first wireless message in it; John Ambrose Fleming invented the wireless valve, and then the coherer, which led to Marconi's magnetic detector; John Logie Baird, of Glasgow, invented television, and the first regular public system was started in England.

This is a shameless catalogue, and shall soon be concluded (although there is no valid reason why an Englishman should be ashamed of achievements that have already served the world so well). One last claim must be softly insinuated. The newspaper, the modern book, advertising, power-printing, broadcasting, television—the cinema! Well, that last-named is an American invention at least? It is not. Lumière, of France, Jenkins of the United States and Skladnowsky of Germany took out patents in 1894 and 1895 for systems of moving photography. But the original patent of the father of the cinema, William Friese-Greene, is clearly dated June 21, 1889. Edison invented his

kinetoscope in 1891 and claimed it to be the original, but his claim was finally set aside in an action before the American Supreme Court, which labelled Friese-Greene the only inventor.

He was an unfortunate man, who lived and died in poverty, because he had no money sense, but only a dominating engrossment in his work. His key discoveries were the celluloid film and the sprockets at its side. He shut himself in his bare room one day and tried to create a clear film. He did not emerge from that room for a week, during which he burnt half the floorboards to keep his pot of glue-like substance boiling. When he emerged, the clear celluloid film was in his hand. He took his camera to Hyde Park Corner—October 1889—and produced the first motion picture.

It was fitting that an Englishman should father this new craft, for modern photography had itself been born in England. The first "talking-picture," although not the first practicable commercial system, was demonstrated by Cecil Hepworth in 1908; and Hepworth made the first silent film of several distinct scenes.

2

But these are little things as yet. The artistic and cultural achievements of these devices are not yet ready for pride. They may be the pens and ink, the brushes and scaffolding of the future, but so far they have only played a tinsel part. If Britain has made a distinct aesthetic contribution, it is not here. What *is* the chief

cultural achievement of this burly, sentimental nation? Is it in literature? It certainly is Shakespeare.

He comes last by arrangement, because whereas all the world can recognize and appreciate a steam-engine, only the few can read a poet. But the few are everywhere, and this English writer has already had such an international currency that his racial origin has often been misjudged. It has been averred in Germany that he could never have been an Englishman: he was so patently a good German. From him sprang the English drama, and from that the modern theatre of Molière, Ibsen and Shaw. He subtended a whole pyramid of dramatic philosophers, big and little, from Goethe to Hardy and Joyce.

Then he created the English language, and indirectly, the modern novel. This was because he made direct use of all strains in the basically polyglot utterance of his time; fused them into one volume, wherein is the first English vocabulary; and plainly showed others what could be done if they tried. His plays were re-born miraculously in his mind from a study of ignoble old ones; the English language was simultaneously joined together from leaden parts and brought to life. He created characters that went out and comforted the world, because men recognized themselves in them, Hamlet, Falstaff, Othello, Macbeth (there are the Nazi "Big Four" for you, if you like), and his apprehension of human difficulties appealed to all men, whatever their temper—from Slav to Chinese. He was and he is universal.

Yet this is still a very curious thing. What Britain

gives the world is mainly material—inventions, notions, methods of insurance against air-raids and tyranny, gadgets—and there is more than justification for the Napoleonic dictum about a shopkeeping nation. Of course the Briton is a shopkeeper, he avers himself, for what else can you do for a living save assassination and quackery (by the last-named, it is feared, the Briton more often than not means anything from medicine to "serious" artistry)? And yet Britain has produced—and her writers are still inspired thereby to impossible feats, quite unequalled elsewhere—this immortal, completely spiritual Shakespeare. Indeed, he is no longer a poet even, but an internationally revered British god.

One part of the answer to that may be quickly given. Shakespeare himself was a shopkeeper. His father sold gloves; the lad held horses outside a London theatre, then acted hack parts for as much money as he could get, which he saved carefully, and sent back to his native-place for the purchase of a good, profit-making house. Then he was never content until he had obtained a share in the theatre where he worked, and went on making more money from this (for he never got more than £6 to £15 for his plays, and must have written them purely for amusement), so that he could, retire at an early age and lead the life of a country gentleman, the ambition of all Britons from barber's boys to pro-consuls. He did retire thus, and wrote no more, save letters of expostulation about sales of corn and livestock to equally choleric neighbours. The visitor to the Stratford birthplace is accordingly regaled

for the main upon a diet of manuscript ledger-entries and *bills*.

So Shakespeare was an Englishman all right, there is no doubt of that—one of those typical Englishmen whom neighbours can never understand: the merchant and poet combined, the musket in one hand and Bible in the other Englishman, the hypocrite to his enemies Englishman and godlike superman to his friends.

Is there no more to be learnt from him, this greatest gift that Britain has given the world, save that he was a typical Englishman?

It has been pointed out elsewhere that the greatest Shakespearean heroes were regicides. And the Shakespearean words about man himself, "How noble in reason! how infinite in faculty! in apprehension how like a god!" have been universally quoted for their hope. This writer, indeed, was not only the father of an English language and literature, but also the inspiration of a nation's ideal in conduct and government. There is socialism here, and rugged individualism too: perhaps they come together to produce the outstanding of British contributions.

3

And yet that in itself is not clearly defined. Well, it shall not be. What has already been written must do it. A few examples have been given of deeds and methods, hardly an exhaustive list, for some departments have not been mentioned at all; and certainly

not an accurate one, for facts are too often overlaid with circumstances beyond a hastening author's control. But there is a connecting thread, for the careful reader to discern, and if it ends as it began with Shakespeare, there should be a lesson. It has been the mission, or the pure chance (according to your philosophy) of certain nations to advance the human race. Once the Greeks did such work, while contemporaries like the Persians did not; Rome continued the task, and a Jew contributed his life; Italy later admitted the hidden learning of those ancients to vitalize the modern Europe; and it came to England.

The British, as has been shown, are not a consciously crusading people. They have thought first of their bread and butter.

But a base or homely desire to lead a quiet life and improve one's garden can sometimes lead to a whole philosophy and culture. If the British, now stirred to perform the very deeds that they have long outgrown and learnt to deplore as anti-social, do seek to impose upon a wider sphere their system of life, it may be millennium for the wider sphere. Does this mean that the steam-engine and the Magna Carta, the playing-field and the Navy, the tropical doctor, the dynamo and Shakespeare have all been tendencies towards an international end? Of course not. But where those live there cannot be tyranny, and if the world wants to be free, then Britain may have shown the way.